

INTER

INTERRELATIONSHIPS AMONG INFANT AND CHILDHOOD MORTALITY,

SOCIO-ECONOMIC FACTORS AND FERTILITY IN ZAMBIA

A CASE STUDY OF LUSAKA AND KEEMBE

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Preface

In response to a request from the Government of the Republic of Zambia, United Nations Economic Commission for Africa and the Central Statistical Office (CSO), Lusaka, jointly undertook a multi-round survey of the inter-relationships among infant and childhood mortality, socio-economic factors and fertility in Zambia. The field work was conducted in four rounds of equal intervals during the period August 1978 and August 1979 and the results were presented to a national feed-back seminar organized in Kabwe during 19-24 April 1982. The documents presented at that seminar have been revised and form the subject matter of this publication.

This survey afforded ECA and CSO, Lusaka to experiment on methodology for collecting data through surveys on such subjects as marriage, fertility, breast-feeding, postpartum abstinence and amenorrhoea. The women's perceptions about the availability and use of medical services and practice of birth regulation. Discussions on these topics and their relationships to fertility and infant and childhood mortality are presented in these papers. The results of the analysis led to the adoption of a number of recommendations by the Kabwe Seminar. These recommendations identify areas of policy and programme development which should contribute to the reduction of current high levels of infant and childhood mortality, alleviate women's health, economic and social burdens and ensure a better life for the Zambian child and woman.

The Ford and Rockefeller Foundations and UNTFAD funded the field-work of the survey and UNFPA funded the data processing and the organization of the feed-back seminar. Their contributions and the very generous financial contributions and the encouragement from the Zambian Government were very instrumental in ensuring the completion of the survey.

We are very indebted to the collaborative role of PADIS in the transcriptions and processing of the data. Special tribute also goes to Messrs. M. S. C. Mulenga and J. P. Banda who as Director of Statistics acted as national co-ordinators for the project and worked so hard to make the venture a success. Special tribute goes to the team of interviewers and supervisors who worked so well with staff from ECA and the personnel of the Central Statistical Office in Lusaka to make the venture a successful one.

We hope that the evidence presented in this volume will help policy makers research fellows and programme officers in their work. Further analysis of the data from this survey will be published in a subsequent volume.

ECONOMIC COMMISSION FOR AFRICA
Addis Ababa

REPORT OF THE SEMINAR

Opening of the seminar

The national Feedback Seminar on the Joint ECA/Government of Zambia Survey on Interrelationships among Infant and Childhood Mortality, Socio-economic Factors and Fertility in Zambia took place in the President's Citizenship College (PCC), Kabwe, from 19-24 April 1982. After an introductory statement by Mr. J. P. Banda, Director of Census and Statistics, the Seminar was addressed by Mr. Humphrey Mulemba, Secretary-General of the United National Independence Party (UNIP), who emphasized that man was key to all development efforts and that the human factor was therefore central in all balanced development efforts. He expressed the Government's appreciation for the crucial role ECA and other United Nations agencies continued to play in fostering development in African countries.

Reminding participants that the Feedback Seminar was being held very close to where UNIP met every five years to take important decisions affecting socio-economic development in Zambia, he expressed his appreciation for the present joint venture between the Central Statistical Office, Lusaka and the Economic Commission for Africa. He noted that the results of many studies done in Africa had often been used negatively and that many had been shelved or locked up for future university theses. A survey which produced its reports and involved field workers, planners and researchers from differing fields in discussing the results was in his view a well done job. He called on participants therefore to use the results of this survey in identifying areas for future action and recommending a plan of action for reducing infant and childhood mortality and improving the well-being of the Zambian people.

An opening address was delivered by Mrs. B. C. Kankasa, Member of the Central Committee and Executive Secretary of the Women's League of UNIP. In welcoming the participants she paid tribute to ECA for its collaborative role in encouraging demographic research and other development efforts in the region. She noted with pleasure the decision to bring to the seminar the results of the survey on the interrelationships of infant and childhood mortality and fertility carried out in Lusaka and Keembe. She highlighted the central role planning played in development efforts in Zambia and emphasized the fact that population growth should not be isolated from the economic, social and cultural situation in the country, and that no simplistic approach to solving population problems could be welcome in Zambia. The party and its Government were committed to encouraging child-spacing in the context of maternal and child health. In concluding her address she stated that reducing mortality remained one of the greatest priority areas of the Zambian Government development policy. In that context she called on participants to study the results of the survey and come up with clear recommendations on actions that would assist the Government's effort to reduce mortality.

A message from Mr. Adebayo Adedeji, Executive Secretary of the ECA, was read out by a representative of the ECA secretariat. The Executive Secretary emphasized that, among the many factors that hindered effective and reliable socio-economic planning in Africa, the scarcity of good data on the size, structure and dynamics of population change had preoccupied ECA since its creation just under a quarter of a century ago. Noting efforts that ECA had undertaken with African Governments to improve the situation, he emphasized that, despite declines in mortality in Africa and South of Sahara during the latter half of the twentieth century, the level of mortality in the region was still the highest in the world. High mortality was dominated by deaths among infants and children under five years of age and hence control of such deaths remained the preoccupation of most governments in the region. In requesting ECA to collaborate with the Central Statistical Office in carrying out the survey under review, the Government of Zambia had demonstrated its concern for the high mortality level in the country and its determination to combat the problem effectively.

He drew the attention of participants to the subject matter of the survey which focused on those human constraints which the Lagos Plan of Action had identified as major impediments to the economic and social advancement of the African people. The Plan recognized the role of women in the struggle to attain self-reliant development in Africa and the survey had investigated crucial areas affecting women's role in national development. He stressed that priority action in reducing infant and childhood mortality required the provision of better nutrition, water supply, education and especially maternal education, housing, maternal and child health services and improvements of general environmental conditions. He expressed the hope that the seminar would come out with useful recommendations which would stimulate national efforts in combating problems related to fertility and mortality in Zambia.

Finally, he thanked the Government, the Central Statistical Office, the Ford and Rockefeller Foundations, the United Nations Fund for Population Activities (UNFPA), the enumerators, the Principal of the PCC and everybody whose contributions had led to the successful completion of the survey and organization of the present Seminar.

Election of officers and adoption of agenda and programme of work

Participants elected Mrs. M. Chintu, Provincial Political Secretary at Freedom House, Lusaka, to be chairperson for the meeting while Mr. J.P. Banda, Director of Census and Statistics, assumed the role of over-all rapporteur. The agenda and programme of work (Annex 1) for the seminar were reviewed and adopted unanimously.

Methodology of the survey

A representative of the secretariat presented the paper on methodology of the survey. He briefed participants on the major objectives of the survey, noting that it had set out to measure fertility and mortality levels in rural and urban communities in Zambia and to identify their interrelations with social and economic factors. The survey, which combined retrospective and prospective data collection methodologies, also investigated cultural, economic and nutritional elements that determined the period of lactation and child-spacing practices. Data had also been collected on age at menarche and women's role in Zambian society.

The survey areas covered comprised Lusaka (urban) and Keembe (rural). The urban survey areas included low-density, high-density and squatter areas of Lusaka. The Keembe survey area consisted of very small villages widely scattered across an extensive undulating land area.

The design, organization and implementation of the survey had been undertaken by the Fertility and Mortality Studies Section of ECA's Population Division and the Central Statistical Office, Lusaka. The timing of survey rounds had taken into account the availability of suitable interviewers during the whole year. Resources for the survey had been obtained from the Ford and Rockefeller Foundations, the United Nations Trust Fund for African Development (UNTFAD), UNFPA and the Government of Zambia.

Standardized questionnaires had been used to ensure that response errors were reduced to a minimum.

The survey comprised a sample of 2,572 households containing 16,508 persons of whom 4,282 were women aged 12 to 50 years. The urban subsample had been drawn using the method of proportional allocation to size and comprised 645 households for high-density, 262 households for low-density and 1145 households for squatter areas. The rural subsample comprised 520 households.

The secretariat also briefed participants on the training of field enumerators and supervisors and publicity for the survey. The seminar was also informed about the data processing and analysis stages of the survey. The main characteristics of the survey population were its youthful structure and the effects of constant migration on the age/sex structure of population.

While the survey had attempted to gain greater insight into the socio-economic and cultural factors influencing fertility and mortality, the findings indicated that mortality surveys required larger samples than ordinary fertility surveys and that such methodology as used in the present survey was not suitable for detailed nutritional studies. The hope was expressed that the methodology would be developed for other surveys and that efforts would be made to develop the vital registration system in Zambia.

Discussions on the presentation centred on the definition of a household and a rural community as used in the survey. The secretariat explained that within the rural and urban context a household comprised members of a nuclear family living in most cases with members of the extended family. It also pointed out that most African families, especially members of the extended family did not live in a single household. Thus the household size was always much smaller than the extended family size. The secretariat explained that a rural community as used in the survey referred to a community living a very parochial peasant subsistence life. Peasant agriculture was the main occupation of people in such communities although some of them might have taken up trading between the city and their community.

In reply to a question on the sampling frame for the urban subsample the secretariat reported that data from the 1969 census and the 1974 sample census for Lusaka had been updated and used for selecting the sample for the survey. Other discussions centred on diets for pregnant women and the role of traditional healers in pregnancy surveillance. It was indicated that people in urban and rural areas in Zambia were adequately informed of services provided by traditional healers and that information about those services was spread by word of mouth through close friends, neighbours and relatives.

Family-household structure and change in Zambia

In introducing this paper, the representative of the secretariat emphasized the most important functions of the family, which included procreation, socialization, mutual affection and various productive activities. He stressed that the family-household unit had been defined in the survey to include members of the nuclear family living together with some members of the extended family in one housing unit who shared common living facilities and recognized one household head. It also included non-relatives who were integrated in the household and who did not belong to another household.

Household sizes in Lusaka and Keembe were relatively large. The average household size in Lusaka was 7.03 in the high-density areas, 8.12 in the low-density areas and 5.61 in the squatter areas. The average household size was 6.60 for Keembe. It was observed that household sizes were particularly large in the low-density areas where over a fifth of the population lived in households of 12 or more members. Although all households were dominated by young persons, the proportion of children under 15 years increased with increasing household size.

The data suggested that household size in Lusaka was influenced by the availability of suitable accommodation and adequate resources within the household. Relatives in low-density areas constituted about one fifth of all household members.

The average number of rooms in households in low-density areas was more than that in the other survey areas. The significant number of relatives in both urban and rural areas suggested that extended family ties were still strong in Zambia.

The secretariat indicated that headship rates rose sharply among urban and rural males after 20 years of age although urban males tended to become household heads at younger ages than their rural counterparts. Age-specific headship rates for women were low although there were proportionately more rural than urban women heads of households. The majority of households were headed by married males and women usually became household heads when their marriages were terminated. It was however observed that over four fifths of all unmarried heads of household in Lusaka were females.

In Lusaka there was a significant shift from the traditional rural pattern where heads of household tended to be old people. Thus there were more younger household heads in Lusaka than in Keembe. Urban heads of household tended to be more educated than rural heads of household.

Significant changes taking place in the composition included the increasing number of members classified as relatives living in the household especially in low-density households. That change would persist if the rural economy stagnated and people hoped for a better life only in the city.

Discussions on the paper highlighted the growing difficulties of urban households which had to cope with an increasing number of relatives and the need for the paper to breakdown heads of household in Keembe by household size. The Seminar made a critical appraisal of current policies to improve the quality of life in the squatter areas in Zambia but noted that such improvements had to be undertaken along with programmes aimed at improving living conditions in rural areas. In what light the Seminar identified as one priority action to improve the quality of rural life as a way of reducing the rural-urban movement. It also acknowledged that political education was needed to discourage the current practice of relatives moving into households and confiscating all property from widows when husbands died.

Marriage patterns and change in Zambia

The representative of the secretariat introduced the paper by emphasizing that marital status had long been recognized as a most important factor in population dynamics as it affected fertility tremendously and mortality and migration to a lesser extent. The timing and frequency of marriage were therefore important aspects in mechanisms for regulating reproduction.

Studies on marriage had to face the problems of what constituted a marital union and when exactly the marital union came into being. Those problems were particularly important in African societies where church and traditional marriages co-existed and both monogamous and polygamous marriages were accommodated.

The Seminar was informed that 63.7 per cent of the 4,282 women studied in the survey declared that they had been married at least once. It was indicated that 80.8 per cent of all ever married women had been married only once. The evidence from the study showed a higher incidence of marriage among Lusaka than Keembe women. It was emphasized that a majority of urban and rural women entered into marital unions very early in life and remained married throughout their reproductive life. Marital stability appeared to be higher in Lusaka than Keembe. The trend towards the break-up of first marriages was observed in all ethnic groups although third and fourth marriages were not common practice.

An analysis of the average number of years women who married before age 50 years spent in a single state, (singulate mean age at marriage) was 19.9 years. However the average age at first marriage for women covered in this survey was 17.1 years for Lusaka and 16.2 years for Keembe. A breakdown of the Lusaka data showed a higher singulate mean age at marriage for women in low-density areas (23.3 years) than for those in squatter areas (16.8 years). The secretariat reported that there was a positive relation between age at first marriage and the level of education of women.

The majority of women who married a second time did not break their marriages themselves and that suggested that many women were marrying before they were psychologically mature for marriage or before they understood their husbands well. Divorce was the single most important reason for marriage dissolution and early age at marriage was related to higher incidence of divorce. Polygamy was not found to be as prevalent in Zambia as in many other African countries.

Participants deplored the trend towards the dissolution of marriage and noted that a contributing factor was very early marriage among girls. Recognizing the health problems associated with early marriage and educational retardation of most girls who married early, the Seminar called for action at the national and provincial levels to encourage parents to send their daughters to school and to guide them to higher education and other career training. The Seminar also emphasized that rural life should be improved through integrated rural development programmes so that young people might find life more rewarding in the rural areas than was the case at present. In that regard the Seminar recognized the importance of political education of women about their rights and duties in modern Zambian society.

Fertility levels, patterns and differentials in Zambia

The representative of the secretariat reported that the estimates suggested very high fertility in both Lusaka and Keembe. Estimates of total fertility for the two areas showed that Lusaka and Keembe women would, under current patterns of child-bearing produce about seven children before they attained the age of menopause. That suggested a slight increase in fertility since the 1969 population census.

A unique feature observed in the fertility of the women covered in the survey was that 15-19 year old women had fewer births on average than women aged 40 to 49 years. An analysis of mean parities by age group indicated that peak parities were attained in the 45 to 49 year age group for Lusaka and in the 40-44 year age group in Keembe, although the difference might have been due to differential accuracy in age reporting. The decline in the fertility of the 15-19 year old women between 1969 and 1979 suggested an increase in age at marriage between the two dates resulting among other things from the expansion of general education.

The gross reproduction rate was 3.3 for Lusaka and 3.8 for Keembe. That index suggested that women produced over three daughters before they attained menopause, a factor which demonstrated the high growth momentum in the population covered in this survey.

The effect of early marriage was reflected in the high levels of fertility reported, although it was obvious that women who married at older ages had lower fertility than those who married before 20. Analysis of fertility by marital status showed that fertility among divorced or separated women was lower than that reported for currently married women. Analysis of current fertility by marital status showed that 91.1 per cent of all births in Lusaka and 76.4 per cent of all births in Keembe occurred to married women. Thus there was a significant contribution to total fertility by unmarried mothers, particularly in Keembe.

The Seminar was further informed of differences in fertility by level of education. In general a higher level of education was associated with significantly lower fertility although primary-school leavers in Keembe had higher fertility than illiterate women, which suggested that women with primary education had acquired better knowledge of personal hygiene and improved nutrition which probably reduced pregnancy wastage. Those women probably also had reduced birth intervals because they were less likely to respect traditional norms about birth-spacing than their illiterate counterparts.

When age at first marriage was controlled, mean parities observed for the Tonga and Lozi were lower than mean parities for other tribes. It was suggested that might have been due to more prolonged schooling among Tonga and Lozi girls than among other ethnic groups whose girls tended to marry at much earlier ages.

Lusaka women who had lived in rural areas for over 20 years had a fertility level which was as high as that reported for Keembe women who had never lived in urban areas. That suggested that the rural environment had a pattern of life that promoted high fertility.

Participants expressed concern about the growing incidence of teenage pregnancies. They reported that the falling age at menarche and increasing urbanization were contributing to that trend. It was the opinion of several participants that, because men were having extra marital relations and ending up with more children and invested in these "other" wives, their proper wives did not see the reason for reducing their speed of child-bearing.

Several participants deplored the current practice of inheritance by relatives of a deceased husband which deprived widows and their children of resources they so badly need for their own survival. That practice often resulted in hostilities between widows and their late husband's families. It was also noted that some widows tended to develop very hostile attitudes towards the parents of their late husbands whom they often regarded as hangers-on. The meeting expressed the desire to see some action at the national level to remedy these problems. \$

After discussing factors which contributed to early marriage among girls and the problems of greater obstetrical and gynaecological problems associated with pregnancies among females aged less than 20 years, the Seminar recommended that action should be taken at the national level to raise the legal age at first marriage. Such action would contribute to reducing teenage pregnancies and would enable women to spend more time at school to prepare themselves for a more rewarding economic and social adult life.

Mortality levels, patterns and differentials in Zambia

In presenting the paper which focused on infant and childhood mortality in the survey areas, the representative of the secretariat observed that owing to the relatively small sample size, the data should be interpreted cautiously. It was reported that estimates of crude death rates, average life expectancy and the infant mortality rates all show that mortality was higher in the rural than in the urban areas. The reported crude death rate was 20.7 per 1,000 for rural Keembe. The reported rate of 6.5 per 1,000 for Lusaka was most probably an underestimate. The death rates among children under one year were observed to be 120.3 and 36.5 per 1,000 births for Keembe and Lusaka respectively. When those estimates were standardized, the crude death rates were 19.1 and

14.8 per 1,000 for Keembe and Lusaka respectively. The corresponding standardized infant mortality rates for the two areas were 131.2 and 111.9 per 1,000.

Estimates of probabilities of dying between birth and age 2 years exactly showed that the male infant mortality rate for Keembe was 142 per 1,000 male births compared to 82 per 1,000 for Lusaka. The probabilities for female children were lower than those reported for males: 88 and 79 per 1,000 for Keembe and Lusaka. The expectation of life at birth implied in the rate for Keembe was estimated for males to be 48.8 years and for females to be 52.5 years respectively. There was a high rate of pregnancy wastage in both survey areas.

The data showed relatively high mortality at infancy and a sharp drop before age ten. However the difference in urban and rural mortality at the younger ages was most pronounced among children under five, although a difference persisted after ten years of age. The almost universal pattern of higher male than female mortality was evident for both urban and rural areas. The infant mortality rate for Lusaka was 68.3 for males and 64.5 for females per 1,000 live births and the corresponding rates for Keembe were 112.3 and 95.0 per 1,000 live births.

More deaths were recorded in the wet season than during the dry season. Most infant and child deaths were recorded during that period and in the cold season. It was pointed out that food shortages and the prevalence of such diseases as malaria were common during the wet season. An analysis of cause of death indicated that parasitic and infectious diseases were responsible for most of the deaths among infants and children under five.

Estimates of mortality based on q_2 values showed significant mortality differentials among urban and rural people and among various socio-economic groups. The expectations of life at births for males and females were 48.8 and 52.5 years for Keembe, and 56.3 and 60.4 for Lusaka respectively. It was explained that these rural-urban mortality differentials were probably due to differences in the level of development between rural and urban areas. Similarly, mortality differentials observed among the three residential areas in Lusaka reflected wide variations in the social and economic well-being of people who lived in the different residential areas. The infant mortality rates for females were estimated to be 27.6, 49.8 and 78 per 1,000 live births for the low-density, high-density and squatter areas respectively. It was also shown that mortality was inversely related to such housing facilities as water supply and toilet facilities. Mortality was higher in areas where living conditions were poorer.

Child mortality in Lusaka differed by level of the mother's education. Thus, it was observed that mortality was twice as high for children born to women without formal education as for children whose mothers had attained secondary and higher education. Mortality differentials by marital status of mothers showed that children born to married women had higher chances of surviving than those born to women who were divorced or widowed. That finding was consistent in all survey areas.

In conclusion the representative of the secretariat observed that the survey areas were characterised by a high level of mortality which was to a large extent due to relatively high infant and child mortality. Deaths to children under five constituted a larger percentage of total deaths than their relative proportion in the total population. There was higher male than female mortality in all the survey areas and the seasonal pattern of mortality indicated that more infants and children 1 to 4 years old died during the cold and wet seasons. As expected the data revealed rural-urban mortality differentials which were certainly the result of educational and residential-type differences among the population groups studied.

Discussion centred on the need to standardize most of the estimates so that differences could be better assessed. Participants noted that poor nutrition, over-crowding and ignorance among many women in poor homes contributed to the very high level of infant and childhood mortality reported for the survey areas.

Several participants emphasized the need for a more effective maternal education programme which should focus on adequate nutritional requirements for children. Emphasis was also placed on the need to improve water and food supply to all households. Finally it was recommended that both the Ministry of Health and the political leadership should expand and co-ordinate their efforts in improving the services available to rural and urban populations.

Body weight, height and nutrition of Zambian children under five years of age

The representative of the secretariat presented the findings of a study on anthropometry: weight, height and mid-upper-arm circumference measurements on a sample of 700 children aged 1 to 4 years which analysed increases in weight and height for different ages.

Urban children were heavier and taller than their rural counterparts. Those residing in urban high-density areas of Lusaka were heavier and taller than those in low-density and squatter areas, although female children in low-density areas were taller and heavier than their counterparts in high-density and squatter areas. Children in rural Keembe were more widely spread around the mean than Lusaka children.

It was indicated that the weight of 21 per cent of children from low-density areas, 25 per cent from high-density, 23 per cent from squatter areas and 30 per cent from rural areas fell below 90 per cent of the expected weight for age. Similarly weights of 34, 39, 36 and 46 per cent of children from low-density, high-density, squatter and rural areas respectively fell below 80 per cent of the expected weight for age. A breakdown of the data by age group highlighted a high incidence of malnutrition (i.e. weight below 80 per cent of the standard) in children aged 1 to 2 years in the high-density, squatter and rural areas. However, percentages of the malnourished in the three categories declined to a minimum level by the age of 4 years.

The mid-upper-arm circumference measurements further confirmed a high incidence of malnutrition in the rural, squatter and high-density areas. However a general examination of the children revealed malnutrition in 8.5, 19.2, 20.1 and 9.6 per cent of children in low-density, high-density, squatter and rural areas respectively. The rural population had the highest percentage (78.8 per cent) of children free from malnutrition and symptoms of skin diseases, which highlighted the high incidence of mild forms of malnutrition in rural children which could be detected only by body measurements and other detailed medical tests.

Discussions centred on the need to compare survey findings with those of previous studies conducted by the National Food and Nutrition Commission. The Seminar expressed concern about the worsening nutritional situation in the country and called for action to strengthen nutrition education programmes and encourage the utilization of local nutritious foods readily available to the families and communities concerned.

The Seminar was informed of the findings of the 1969-1973 nutrition status and food consumption surveys conducted by the National Food and Nutrition Commission in conjunction with FAO/UNDP which highlighted energy deficiency as the main nutrition problem in Zambia. Those studies showed that energy deficiency resulted in the utilization of the much needed protein for energy production.

The Seminar regretted that most Zambian families were in fact not consuming enough food and that the problem of food preservation created seasonal shortages which aggravated nutritional deficiencies. Extension workers were handicapped by lack of transport services in their effort to educate the population on the nutritional and public health measures required to combat those deficiencies. It was recommended that more work should be done in the areas of diversifying the diets of various communities in Zambia.

The Seminar called for maximum co-operation among extension workers in ministries of health, labour and social services (community development department) and agriculture in all matters related to nutrition and general improvement in the quality of life.

Food and feeding patterns and habits in Zambia

The representative of the secretariat informed participants that the analysis was confined to quantitative aspects of food and feeding patterns in the survey areas. The central role of food for ~~human survival and decision-~~ing per capita food production in developing countries had created widespread concern about the world's ability to meet the future food requirements of its rapidly growing population.

The types of food, feeding patterns and habits of any society were influenced inter alia by ecological factors, traditional values and the purchasing power of the people. Maize, the staple food in Zambia, was served with other foods such as meat, vegetables, beans, fish and poultry.

An analysis of foods served in households in Lusaka and Keembe for breakfast, lunch and dinner indicated that most households tended to serve the same types of food for different meals. Although rural households potentially had a better chance of a well balanced diet, the data suggested that widespread ignorance of what constituted good food limited the diets to a few items. A wider variety of food was reported for urban households and foods consumed in the higher-income groups were more numerous: nsima, rice, beans, meat, fish and fats as well as tea, coffee, bread and milk. Vegetables and fruits were consumed more regularly in households in Lusaka than in Keembe. And analysis of food preferences showed that, although most households would like to improve their diets, the choice listed was very limited, which suggested very widespread ignorance of what constituted good food.

Pregnant women in developing countries tended to gain less weight than their counterparts in developed countries owing to poor nutrition associated among other things with food taboos. The data from the survey indicated that pregnant women were not expected to eat eggs, pork, wild meat and other foods. The reasons given for these taboos included the fear that baby might have no hair when it was born, that it would breathe like a pig or behave sheepishly. Those taboos, the secretariat emphasized, deprived women of very valuable sources of protein and vitamins. It was noted that, although doctors recommended special diets for pregnant women, there was no evidence from the women's responses of a very intensive education programme on nutrition during the ante-natal period. The presentation concluded that improvements in the mortality situation among children under five would require significant improvements in food supply to pregnant and nursing mothers and their children. It also called for a national nutrition survey and education programme that would focus on the requirements of mothers and children.

Discussions emphasized the need for the ministries of health, agriculture and labour and social services to co-ordinate their activities in the field of nutrition. Some participants raised the problems of lack of transportation for extension workers who should play a major role in nutritional education in the rural areas. It was noted that rural women spent plenty of time fetching water and wood and a call was made to political leaders to introduce simple technology that would lessen the rural women's burden.

Participants noted with grave concern the reports from the National Food and Nutrition Commission that not enough food was being consumed in a majority of homes of the lower-income groups and that seasonal food shortages were being experienced during periods when the farmers needed the most energy for farming.

The Seminar recommended that district development committees should co-ordinate the efforts of all groups to improve food production. The ECA Women's Centre (ATRCW) was requested to arrange study tours for women to visit other African countries to learn how women were using appropriate technology to lighten their burdens and improve the quality of the food they served in their households.

Aspects of migration in the development of Zambia

Introducing the paper the representative of the secretariat indicated that over 40 per cent of the population of Zambia was urban. Although data were based on a sample survey, both the net migration change and the turnover rates appeared high.

The data from the survey revealed that there were more female than male migrants in both Keembe and Lusaka. Most migrants were in the age group 15-39 years and many were relatives of heads of households. Unmarried persons constituted 77 and 70 per cent of all in-migrants in Lusaka and Keembe respectively. The corresponding percentages for out-migrants were 76 and 67 per cent. The data indicated that more educated than illiterate persons migrated out of both Keembe and Lusaka. The secretariat pointed out that in general the results of the survey were consistent with the findings based on 1969 census which suggested that almost all migrants were under 45 years of age and about half of them were females.

The Seminar was also informed that the origin and destination of migrants revealed new streams of rural-to-rural and urban-to-urban migration. Most migration streams in Keembe were either to or from rural areas within Central Province and the urban streams in Lusaka were predominantly to or from the Copperbelt Province. The secretariat also observed a seasonal migration stream recorded during the period December-January. The data showed that most of internal migrants moved into or out of the survey areas for such reasons as visiting, joining husband or taking up a paid job.

In conclusion the secretariat observed that, while internal migration contributed to the development of rural areas whereby returning migrants transferred capital and knowledge from urban areas, the influx of able-bodied people to urban centres comprised a pool of labour for the mines and factories. However, it was pointed out that some of the social problems in towns were aggravated by the rapid influx of people from the rural areas and from other towns. Shortages of housing, poor sanitation and congestion resulted in the growth of shanty towns and general over-loading of essential social facilities in urban areas. That situation also sustained the current high levels of infant and childhood mortality.

Discussions centred on the need to implement a policy of integrated rural development and political education and to institute social measures to discourage movements to urban areas. Several participants emphasized the need for movements of under 1 year of absence or presence to be excluded in migration studies of that nature. It was also the view that data should be broken down by sex and age group. Several participants doubted the reliability of responses on cause of departure which were given by women only. It was the view of the Seminar that, while some rural development schemes could reduce out-migration some projects could actually increase it. It was therefore necessary for such schemes to be well planned and monitored at every stage of implementation to avoid all negative effects that would aggravate rather than reduce the problem.

Availability and use of medical facilities in Zambia

Introducing the paper, the representative of the secretariat observed that medical facilities had increased tremendously since the country gained independence. The quality and distribution of the services had improved significantly as illustrated by the medical team density ratio which by African standards was relatively high.

Most respondents utilized the services of traditional healers as well as modern medicine. It was, therefore, acknowledged that the Government's intention to integrate traditional healers into its national medical care services, as was being done elsewhere, would go a long way to improve the services of traditional healers and enable many people to benefit from both types of services.

It was also reported that, although a majority of respondents were satisfied with services received, some were dissatisfied because sometimes nurses were rude and sometimes they did not receive treatment in time. That expression of dissatisfaction was certainly related to long distances to clinics, shortage of drugs and lack of personnel.

The paper also pointed out that, besides curative services, preventive services were provided by Government health services. Over 60 per cent of the women indicated that their children were vaccinated against most of the infectious diseases. It was suggested that more effort was needed to attain 100 per cent vaccination against the major diseases.

The care of sick children was generally left to the women alone, although it was reported that more husbands in Keembe than in Lusaka assisted their wives when children were sick. Women were entirely responsible for caring for sick children and the father's role was relatively insignificant.

Discussions on the presentation centred on the need to encourage more research in traditional medicines and to make efforts at the national level to integrate traditional and modern medicine in the interest of the population. Such an integration would save resources at a time when imported medicines were so expensive. Emphasis was placed on the need to involve fathers in education for responsible parenthood. Greater emphasis should be laid on preventive medical and educational health programmes.

Breastfeeding and sexual abstinence in Zambia

The representative of the secretariat introduced the paper by indicating that significant fertility differences were observed in natural fertility societies and that had led many scholars to postulate that lactation and sexual abstinence contributed to the containment of human fertility in such societies. It was noted that breastfeeding guaranteed adequate nutrition for the newborn child and provided protection against several ailments at a time when the child was unable to feed itself. The demonstrated effect of breastfeeding was to reduce infant and childhood mortality and frequent and closely spaced pregnancies.

Breastfeeding in many African societies sometimes extended for periods of up to three years. However, in recent years, the practice had been on the decline in many developing countries especially in cities and peripheries of urban areas.

Data from the survey showed that a great majority of women in Lusaka and Keembe breastfed their children. ~~For Keembe women~~ ~~breastfed~~ ~~their children~~ for longer periods than Lusaka women, although the mean duration of breastfeeding for first children, 16.9 and 15.1 months for Keembe and Lusaka respectively, was lower than the duration reported for the Yoruba of Nigeria. Expected mean durations of breastfeeding reported by Lusaka and Keembe women, 18.9 and 18.6 months respectively, were much longer than their actual duration of breastfeeding of 17.0 Lusaka and 14.8 months Keembe for the most recent child.

Most Zambian women breastfed to ensure better health for their children. There was no evidence from the study that women breastfed to space or limit the number of children they would eventually bear. The Seminar was informed that the proportion of women who breastfed their most recent child increased substantially with increasing age of mothers.

In that regard, the secretariat stated that unscrupulous methods of marketing "infant formulae" in many developing countries had taken the lives of many infants in poor communities. It stressed that the evidence from the survey data that younger women breastfed for shorter durations and that the mean duration of breastfeeding was shorter in urban than rural areas suggested a steady abandonment of the practice of breastfeeding for long periods.

More Keembe than Lusaka women reported having sufficient milk when they breastfed. Although it was stated that the majority of women from both survey areas started breastfeeding at birth, the data suggested that an increasing number of women did not breastfeed their children "on demand". In Lusaka, that was probably due to the practice of introducing artificial milk at very early ages, staying away from the home for long hours and being too preoccupied with other household activities to bother about breastfeeding. In Keembe the problem was probably due to the numerous tasks that each woman had to perform even soon after childbirth.

Over half of all women interviewed fed their children the normal family meals before the children were one year old. It was also reported that most women in Lusaka and Keembe gave only cereals and other carbohydrates as weaning foods. The data suggested widespread ignorance of what constituted good weaning foods among both urban and rural women.

Data on postpartum sexual abstinence suggested that, although knowledge of the practice was widespread among urban and rural women, both the expected and the actual durations of abstinence were relatively short when compared to data from studies in other countries. In that regard it was reported that the mean duration of postpartum sexual abstinence for the last closed birth interval was 5.2 and 3.7 months among Lusaka and Keembe women respectively, which contrasted significantly with longer duration reported from Nigerian studies.

Although most women stated that they practised abstinence in their children's interest, a significant percentage of them had sexual relations shortly after childbirth to avoid their husbands going out with other women. The fear of getting pregnant was not given as a major reason for abstinence. Evidence suggested that, although sexual abstinence has been practised over the years as a method of spacing birth, the perception of the contraceptive role of that practice appeared to have declined significantly in recent years.

The high level of fertility in both Lusaka and Keembe and the relatively short durations of postpartum abstinence recorded for both areas tended to support that conclusion.

Given the very short mean duration of postpartum sexual abstinence and the very low levels of contraceptive practice, the single most important factor determining intervals between births was the duration of breastfeeding. Any reduction in that duration would, in the absence of increased family planning practices reduce the birth interval and aggravate maternal morbidity and mortality problems which were so common in those societies.

Discussions on the subject highlighted problems of breastfeeding among urban women whose life-style was not organized to allocate enough time to their babies. Many participants expressed concern about the declining duration of breastfeeding among urban and rural women. It was indicated that food in most households was not enough for the nursing mothers and that urban women had abandoned those traditional foods which were given to nursing mothers to increase breastmilk. Because artificial milk was so expensive and hygienic conditions in most homes less than adequate, most mothers diluted too small a quantity of milk and few adhered to the demands for sterilizing bottles before preparing feeds.

The Seminar concluded that breastfeeding, which was important for the physical and psychological development of the child, should be sustained by vigorous campaigns. Participants called for action to enable working mothers to breastfeed regularly during work. The Seminar urged both public and private organizations to provide day-care centres for such women.

Family size preferences and child-spacing patterns in Zambia

Deliberations on this subject were based on a paper presented by the secretariat. The representative of the secretariat observed that African societies placed high premium on children and viewed a woman's inability to bear children as a great tragedy. He emphasized the significance of studying family size preferences and especially of highlighting factors that motivated couples towards a given fertility behaviour. Such studies could throw some light on expected changes in future reproductive behaviour.

The secretariat reported that under conditions of high infant and child mortality, fertility tended to be high and hence, when mortality dropped, couples could achieve the same number of survivors with fewer births. In the survey most women had explained that the most important reason for couples wanting many children was to have company and support in old age. A significant number said that children were God's gift. Few of them wanted many children for the so-called replacement effect, although such a thought may have been at the foundation of the pro-natalist values developed by the society.

Zambian women's perception of "large" and "small" families implied about 10 and four children respectively. In general preference for large families increased with advancing age. Although responses reflected high fertility values and norms, almost half of all urban women in the survey thought that, in view of the rising cost of living, there was need to have a smaller family. The association of the number of children with current economic problems was a new approach to the analysis of life-styles among those women.

The women covered in the survey wanted a number of children which corresponded to an estimated total fertility rate of about seven children, which seemed to reflect more a rationalization of achieved fertility than any trend towards smaller family size among young women. An assessment of societal norms about the number of children women should have showed that the mean number recommended by respondents was 6.3 and 8.2 for Lusaka and Keembe respectively. The number recommended by close friends and relatives was equally large. Although respondents showed no preference for boys rather than girls, Lusaka women reported that their husband's families showed stronger preference for boys. It was however emphasized that the results might have been different if men had been interviewed. It was interesting to note that, while rural women thought families with many children were more important than families with few children, Lusaka women did not consider that to be the case which probably reflected the relative economic usefulness of large families in subsistence agricultural economies.

The Seminar was informed that women's choice of suitable birth intervals showed a longer mean for Lusaka than Keembe. Women in both survey areas reported that their husband's parents and relatives recommended shorter birth intervals than they would prefer. An analysis of the last closed birth interval (i.e. interval between the last two births) indicated a mean duration of 30.6 and 34.3 months for Lusaka and Keembe respectively. That suggested that there was pressure from the extended family for women to maximize childbearing activities.

The problems of raising children which occupied women's attention included feeding, clothing and cost of education. The increased cost of feeding children ranked highest among problems enumerated by women, which might have been a reflection of their preoccupation with current food costs and shortages rather than the non-existence of other problems of child care. The secretariat, however, concluded that the widespread perception of problems associated with large families was a first step towards encouraging women to plan the timing, frequency and number of births they and their husbands would want.

Discussions on the presentation stressed that the results would not be useful unless similar information was obtained from men. The Zambian women, normally did not determine the number of children they would have. Parents and older relatives of the women's family and family in-law usually had a determining role. Although women had serious views on those matters, their complaints were usually not heeded in most cases. The Seminar therefore, recommended a programme of family education that would involve men more actively than existing programmes did.

Knowledge, practice and attitude to birth regulation among Zambian women

The representative of the secretariat introduced the subject by observing that total fertility in all human societies was significantly lower than the maximum possible, for reasons relating to differing age at first marriage and the extent to which couples or women regulated the timing of births and number of children they bore.

The Seminar was informed that many women in the survey areas reported that they did not know of any birth regulation methods. Among those who knew some methods, the pill and traditional methods were most widely mentioned. In general, younger and more educated women knew more methods of birth regulation than their illiterate counterparts. Although the data showed more widespread knowledge of birth regulation methods among rural than urban women, it was not clear whether these differences reflected greater self confidence among rural than urban women to discuss such matters or whether that state of affairs in fact reflected reality. The health demonstration zone clinic in Keembe might have contributed to improving rural women's knowledge of birth regulation methods.

It was noted that knowledge of birth regulation methods was higher among urban single than married women, but the widespread ignorance of birth regulation methods was also reflected in the low level of usage of birth regulation methods among such women. Contraceptive use was surprisingly higher among rural than urban women. Thus 16.4 per cent Keembe women had used the pill compared to 15.2 per cent of Lusaka women. In Lusaka the use of contraceptives was highest among divorced women although as much as 12.9 per cent of all never married females had used contraceptives.

The Seminar was informed that more educated than illiterate women in Lusaka and Keembe had used the pill. Women who had used contraceptives indicated that they had used them to avoid pregnancy and a significant number indicated that they used contraceptives to space births. A majority of those who had never used contraceptives indicated that they would be willing to use them if they were prescribed by a doctor. It would therefore appear that the non-use of contraceptives was associated with uncertainty among women about the safety of existing methods.

Few of the women interviewed had ever discussed family planning with their husbands although the number was lower for Keembe than Lusaka. Major reasons for not discussing family planning matters with the husband were the desire to have children and adherence to religious dogma on the subject. A significant number of women thought having many children affected women's participation in economic and social life. The percentage of Keembe women who said so was, however, lower than for Lusaka. The evidence indicated that few women recognized family planning as necessary for planning the timing and frequency of their births and those who used contraceptives did not use them to limit the number of children they would bear.

Discussion on the presentation emphasized the need for women to be educated about the options that were open to them and on the side-effects of different contraceptives. In that regard several participants sounded a note of caution on the danger of some private practitioners experimenting on women with methods which had not been approved even in the country of manufacture. Many participants acknowledged the existence of traditional family planning methods but regretted the secretive attitude of village midwives. The Seminar recommended that women seeking family planning services should receive adequate information about side-effects and should be thoroughly examined before they embarked on any of the methods available.

The child-bearing contribution of women to development with reference to the Lagos Plan of Action

A representative of the ECA African Training and Research Centre for Women (ATRCW) introduced the paper which identified the development strategies of the Lagos Plan of Action relevant to the objectives of the Seminar, namely to:

- (a) Develop and fully mobilize all human resources (men, women and youth);
- (b) Integrate women meaningfully in development; and
- (c) Integrate the population factor into social and economic planning.

She observed that African women had always played a major role in social, economic and political development, but their participation had neither been recognized nor documented and the benefits they had derived from development had been limited. The issue for women and development was the type, extent and quality of the contribution women had made and how much they had benefited from development. Thus she called for official recognition and deliberate efforts on the part of Governments, development planners and field staff to facilitate and encourage women to participate more in and maximize their benefits from development.

She provided an overview of the current pattern of childbearing in Africa, identifying the factors that affect childbearing. She suggested measures to improve the childbearing role of women in order for Africa to implement three of the development strategies laid out in the Lagos Plan. The paper described a project undertaken by ATRCW to improve people's quality of life by integrating population and family life education into development programmes.

Discussions on the paper concerned the justification for considering women a special case in development. In that regard the Seminar stressed the fact that women were disfavoured in many important areas of economic, political and social activities. It was also acknowledged that women combined several economic and domestic duties together with their childbearing roles. It was suggested that women, especially those in rural areas, should be provided with appropriate technology that would lessen their burdens.

It was the opinion of the Seminar that a different kind of education should be developed for the African woman to enable her to draw maximum benefits from development. In order to upgrade women's status in the process of development, the Seminar recommended that the age at first marriage should be raised to enable more girls to stay on at school. Finally the Seminar stressed the need for society to give greater recognition to the role of mothers in childbearing and appealed to governments and organizations to play important roles in implementing those recommendations.

Women and the future development of Zambia

The Director of the Central Statistics Office, Lusaka, introduced the subject by observing that in most developing countries the role of women in running the affairs of the countries was obscure. Although men tended to dominate such affairs in Zambia, there was a recognition of the need for women to play a more effective role in the socio-economic development of the country. In that regard efforts were being made to integrate women into the national developmental effort.

Zambia had a fast growing population. Its growth rate of 3.1 per cent per annum was above the average for Africa and if the current trend continued the population of Zambia will be more than 10 million by the year 2,000. The Zambian population was also young; about 47 per cent of it was less than 15 years old. According to the 1980 Census of Population the sex ratio was 962 males per 1,000 females.

Discussing the role of education in national development, he emphasized that education was a proxy for a number of variables that interacted to enhance individual and national development. Participants were informed that under the colonial regime education for females in Zambia had been neglected. A marked improvement in formal education had been achieved since independence. However, despite that improvement the enrolment of females was still far below that of males especially at higher levels of education. Girls had constituted 43.2 per cent of the pupils enrolled in primary schools in 1954 and the percentage had risen to 46.5 per cent in 1980.

The labour force female participation rate had been 30.1 per cent in 1969 and was projected to reach 32.1 per cent by 1984. Those participation rates were as low as in other developing countries. It was acknowledged that because the majority of people did not work in the modern sector, the rates had to be interpreted with caution.

With regard to rural women, he highlighted the fact that women contributed to agricultural production from childhood to old age; they produced most of the food crops, especially, where there was sex-selective migration to the old line-of-rail. It was however observed that their methods of production remained inefficient partly because extension services discriminated against women. Since 60 per cent of the female population lived in rural areas, they could not generate high incomes.

In concluding he pointed out that the contribution of women to the future development of Zambia was crucial, and suggested greater integration of women in social, cultural and economic development. He however emphasized that female enrolment in secondary and higher education was still very low and action was needed to increase the number of girls going on to higher and professional education.

In the discussion that followed the presentation, participants pointed out that women's work was not recognized even by their own husbands and that some husbands did not share their income with wives. The Ministry of Agriculture and Water Development had by now expanded its extension services to female agricultural producers in the rural areas.

With regard to low enrolment rates among girls, suggestions were made that the picture should be made clear by the presentation of graduation rates too. There was general agreement that the Government had made considerable progress in the field of female education although a lot more remained to be done. Participants emphasized the need for girls to be encouraged to stay on at school and for parents to be educated about the advantages of sending their children to school. It was the view of the Seminar that prolonged schooling among girls would not only raise the age at first marriage but would also provide girls an opportunity to prepare themselves for a more rewarding working life.

SUMMARY OF GROUP DISCUSSIONS

Discussion Group on Fertility

11 The group examined the often repeated view that Zambia had a low population density (under 8 persons per square kilometre), that the labour force and internal market were small and therefore there was no need to worry about the high birth rate in the country. The Group rejected that simplistic analysis of the situation. It shifted its analysis from the macro level where only rates were quoted to the micro level and the individual family situation where the problems were seen in terms of feeding, clothing, housing, medical care, education and employment for adult and growing members of the family. The Group noted that the current age structure of the population would sustain high levels of fertility and rapid rates of population growth during the next 20 to 30 years even if a family planning programme were launched. It observed that present levels of fertility often meant that Zambian mothers had several children below five to look after at the same time and that that high child-woman ratio rendered it difficult for most of them to give their children the adequate and continuous maternal care so badly needed for balanced child development.

The Group was concerned that an increasing number of births occurred to females less than 20 years of age. It emphasized that medical evidence indicated that births, especially closely spaced births or births to females of poor nutritional status, at those ages tended to involve more obstetric and gynaecological problems. Since those women tended to continue child-bearing until menopause their problems increased with advancing age and resulted in high incidences of maternal and infant deaths, low birth weights and frequent pregnancy wastage. It was also acknowledged that females who began child-bearing under 20 years of age tended to be less educated and remained less able to improve their economic and social situation in society throughout life. Those women also invariably lacked the knowledge to provide educational guidance and appropriate nutrition to their children.

The Group further acknowledged that families with a large number of children resulting from closely spaced births tended to be less than adequately nourished. Children from such homes tended to perform less well at school than their counterparts from homes with fewer children. The Group regretted that daughters in such homes were very often "pushed" into premature marriage as a way of lessening pressure in the homes or as a means of obtaining resources from sons-in-law.

The Group noted that the presence of many young children in the home encouraged many fathers to seek "peace" in drinking places. That situation also propagated juvenile delinquency and prostitution among young girls especially in poor urban homes. There was also growing evidence that mothers in such homes developed psychological disorders which contributed to the breakdown of responsible parental care and discipline.

The Group also observed that rural communities and the urban poor had very limited recreational facilities and no light and water supply and those factors contributed to sustaining high fertility and closely spaced births resulting in higher child and maternal mortality and morbidity. The situation was deteriorating notwithstanding current efforts by the Government to combat those problems. The improvement of housing conditions and the provision of electricity and recreational facilities in those areas, the Group advocated, would go a long way to reducing current problems.

Discussion Group on Mortality and Nutrition

The Group observed that, although mortality had been falling in recent years, the level was still high in Zambia. The high level of mortality was dominated by deaths to infants and children aged 1 to 4 years. Deaths among children under 5 years of age were caused by groups of parasitic and infectious diseases which, according to an analysis, were more prevalent during the wet and cold seasons and which in general could easily be prevented.

It was found as expected that there were more male than female infant and childhood deaths and that the death rate among children aged 1 to 4 years was greater than the infant mortality rate. Mortality was higher where living conditions were poorer. Infant and childhood mortality was generally higher in the rural than urban areas. Similarly the Group observed mortality differentials by area of residence in Lusaka. For instance mortality was generally highest in the squatter areas followed by the high-density areas and low-density areas experienced relatively lower mortality. It was also found that a higher maternal education depressed the level of infant and childhood mortality. Thus, infant and childhood mortality decreased with increasing level of maternal education and child survival ratios were observed in all areas to be twice or thrice as low for children of women who had never been to school than for the children of ~~whom whose had a secondary and higher education.~~

The Group reviewed the current debate on the relationship between fertility and infant mortality in the light of the findings of the survey and concluded that maternal education was the most discriminating factor influencing mortality among children under 5 years of age. The group identified poor nutrition of infants and children as well as that of expectant and nursing mothers as a major factor which contributed to malnutrition. It was observed

that the incidence of malnutrition was higher among single mothers. It was also noted that malnutrition, poor water supply and the lack of toilet facilities were major causes of the high prevalence of infectious and parasitic diseases. That complex relationship created a situation where acute and chronic infections and malnutrition maintained a high level of morbidity among children and rendered them easy victims to any epidemics. The resulting high frequency of morbidity and mortality was most prevalent in the urban squatter and rural areas.

F Finally, the Group discussed sex differentials in mortality among infants and children. It noted that mortality was higher among males than females and that that was similar to evidence from other countries in the region and acknowledged that the differences were due among other things to biological and genetic factors and called for greater research in that area.

Discussion Group on Women in Development

Current constraints to women's participation in socio-economic development in contemporary Zambia

The Group identified the following problems:

Owing to the limited number of school places and facilities in the educational system, some parents preferred their daughters to get married at an early age in order to benefit from the bridal payments and material support from their prospective sons-in-law. Some parents, who regarded education of their children as an investment and insurance during old age, encouraged their sons to go for further education. They did not give such encouragement to their daughters who eventually got married and became full-time housewives with little prospects of getting well-paid wage employment. The Group observed that, in some secondary schools, girls were encouraged to take subjects such as typing, cookery, health science, sewing, etc., which limited their choice of training in higher institutions of learning. It also regretted the insufficient institutional facilities for informal education available to women with or without basic education. It was the view of the Group that long initiation ceremonies interfered with the school calendar, and therefore deprived girls of the opportunity to continue and to concentrate on their studies.

Cultural constraints

The group identified some traditional norms and values which inhibited women from effective participation in socio-economic development. They included the widespread perception of women's role as that of a housewife duties were childbearing and rearing and the generally held view that women were expected to play only a supportive role to husbands in socio-economic activities. Those

values and perceptions constituted major constraints to national efforts to integrate women in the economic, social and political activities of the nation.

Time constraint

Women in both rural and urban areas, the Group observed, had too many responsibilities such as bearing and rearing children, managing homes and producing the food. They began to assume those responsibilities at very early ages. Even when girls went to school they had to combine those duties with schooling and therefore found little time at home to concentrate on their studies.

Financial constraints

It was the view of the Group that the lack of financial resources had inhibited women from participating effectively in socio-economic development. Women's club's activities, the group emphasized, required money for materials which they could ill afford. Business arrangements tended to exclude women from areas of activities that would benefit women. Consequently, women found it difficult to secure funds from financial institutions for farming, small-scale industries and other business activities.

Frequent child-bearing

The Group also noted that a woman's participation in social and economic activities was adversely affected when she became pregnant. For example, a pregnant woman in many cases reduced her labour input in agriculture and in employment in the formal sector. When she delivered the baby she was least prepared to operate effectively in those areas of economic activities which society rewarded so highly. When child-bearing started early in life and continued to menopause as was the case for most Zambian women, the frequent interruption of working life rendered women least in the modern sector with its regulations which did not generally accommodate such frequent interruptions. Those interruptions tended to be very frequent when women bore many children and when they had to look after several children under the age of five. Consequently, as the Group noted, the reproductive role of women was effectively an obstructive factor in their effort to comply with occupational arrangements which took no cognisance of the special childbearing/rearing role of women in society.

RECOMMENDATIONS

- (1) The Seminar recommended that nutritional education should be extended to both rural and urban areas and that fathers should be involved in such education.
- (2) Health education should be included in courses in all fields to reduce the current widespread ignorance of health and nutritional requirements of children and mothers. Other programmes to reduce malnutrition should be extended to include services for single mothers.
- (3) Action should be taken at the national level to stimulate family planning and child-spacing among couples as a means of combating the current problems listed in this report.
- (4) Breastfeeding, which the majority of Zambia women practise, should be encouraged and urban societies should organize the economic activities of women to ensure that this valuable practice is not discontinued. In this regard, programmes to improve maternal nutritional status should be mounted. Women, especially in urban areas, should receive adequate guidance in organizing the nutrition of their children at very young ages.
- (5) Child-bearing among young girls should be discouraged through greater parental control and guidance, provision of professional and vocational training facilities and proper family health education.
- (6) The minimum age at first marriage for both boys and girls should be raised to enable them to acquire technical skills needed in later life, prepare them psychologically and economically for the institution of marriage and reduce the current high levels of divorce associated with marriages among young people.
- (7) Girls should be encouraged to take advantage of available educational opportunities and efforts should be made at the national level to increase enrolment among girls in urban and rural areas. In this light the Seminar endorsed the current educational reforms and urged that they should be implemented as rapidly as possible.
- (8) Fathers should be educated on the importance of child-spacing in the context of maternal and child health, better family nutrition and better planning for children's future.

- (9) The Seminar recognised the presence of many organizations in Zambia that were interested in improving participation of women in socio-economic development. It was recommended that the efforts of those v
vr various organizations should be co-ordinated by a committee to enhance their efficiency and effectiveness.
- (10) The Seminar recognised the importance of integrating women into the national development process. It was recommended that efforts should be made to ensure that women were well represented on planning and decision-making bodies and that all planning and project development take due account of the special child-bearing/rearing needs of women.
- (11) The Seminar recognised that current women's programmes in education, health, nutrition, employment, commercial activities etc. were suitable. However they were inadequate to cater for all women. Therefore the Seminar recommended that the programmes should be expanded and implement-
ed more effectively.
- (12) Primary health-care programmes should be extended to ensure that services were available to rural communities and that immunization services and other preventive measures were encouraged. In this area, basic health education and personal hygiene should be emphasized.
- (13) The Government should step up its efforts to integrate traditional and modern medical services. This, the Seminar hoped, would help in the development of a national pharmaceutical industry which would save foreign exchange and reduce the current high cost of drugs.
- (14) Women should have easy access to credit facilities for agricultural, small-scale industries and other business activities. Existing legis-
sl-tislation in this area should be reviewed to make such resources avail-
able to women.
- (15) The Government should set up a commission to study existing inheritance practices which tended to leave the widow and her children deprived of resources needed for their survival.

CLOSING SESSION

Following the adoption of the report of the Seminar, the closing statement was delivered by Ms. Z. Ndhlovu, Minister of State, National Commission for Development Planning. She acknowledged that the Seminar had examined what she considered some of the most fundamental development issues that had preoccupied the Party and its Government since independence and expressed the hope that participants had pondered seriously over the implications of the findings of the joint venture between the Central Statistical Office and the Economic Commission for Africa. She expressed the hope that all participants had derived maximum benefits from the deliberations and that they had had the opportunity of sharing field experiences with colleagues from other areas of the country.

Emphasizing the view that there could be no meaningful development if the masses lived in poverty, she indicated that her Department attached great importance to empirical research of the type under review that was aimed at improving knowledge which was indispensable in the effort to combat current problems related to mortality and fertility in Zambia.

Notwithstanding tremendous efforts made to combat problems of high infant and child mortality, deaths to children under 5 years of age constituted a significant portion of the total deaths occurring in the country and it was most disheartening that most of these deaths were caused by easily preventable diseases. Efforts to reduce those deaths, she emphasized, must focus on problems of malnutrition, social, cultural and economic factors that encouraged early marriage and maternal problems related to closely spaced births which were associated with low birth weights and increased obstetric and gynaecological problems.

She decried the alarming disparities in living conditions of people in urban and rural areas. Malnutrition, measles and respiratory diseases were major killers of children under 5 and she expressed serious concern about the rising prevalence of sexually transmitted diseases. The Party and its Government had introduced wide-ranging reforms involving the decentralization of administration with an aim of getting people involved in all stages of development planning and project implementation. She hoped that the reforms would improve women's education and ensure the proper use of any family planning techniques to space births and reduce current levels of malnutrition, and infant and child morbidity and mortality. Reviewing paediatric and other hospital statistical data from the University Teaching Hospital, she identified malnutrition, measles and respiratory diseases as major killers of children under 5 and expressed serious concern about the rising prevalence of sexually transmitted diseases. Those areas she indicated would pre-occupy the nation's attention in the future.

In conclusion she expressed the hope that the recommendations of the Seminar would be treated with the seriousness they deserved and that concrete action programmes would emerge from them. Finally, she expressed the Government's gratitude to ECA and the agencies and foundations for their collaborative role in making the study and the work of the Seminar such a success.

Mrs. Beers, on behalf of the participants, proposed a vote of thanks to the Central Statistical Office and ECA for their joint venture in carrying out the survey and organizing the Feedback Seminar to provide an opportunity for participants to review the results. She also expressed thanks to the Government and the President's Citizenship College, Kabwe, for providing such an excellent environment for the Seminar. She concluded by expressing the hope that all participants would share their experience with colleagues who had not been able to attend the Seminar.

METHODOLOGY OF THE SURVEY

1. INTRODUCTION

1.1 Background Information

The Republic of Zambia is a landlocked country situated in the heart of the southern half of Africa. Lying entirely within the tropics, it is located between 7° and 18° south latitude and stretches between 20° and 35° east longitude. Its relatively large area of 752,600 square kilometres is surrounded by eight neighbouring countries (Angola, Zaire, Tanzania, Malawi, Mozambique, Zimbabwe, Botswana and Namibia).

The relatively high altitude of the country gives it a relatively temperate climate with three seasons: a cool dry season that lasts from late April to August, a hot dry season which starts from September and ends in early November; and a warm wet season which lasts from mid-November to April. Rainfall ranges from less than 30 inches per annum in the southwest to over 50 inches per annum in the north. Much of the vegetation is deciduous savannah woodlands.

Rail links to the Indian Ocean are provided by the Tanzam Railway to the port of Dar-es-Salaam, Tanzania, the southern railway line, through Zimbabwe to Beira and Maputo, Mozambique and the South African port of Durban. An outlet by railway to the Atlantic Ocean is available through the Angolan port of Lobito.

The relatively large areas of Zambia, 752,600 square kilometres is the home of just over five and a half million people. 1/ With an average population density of 7 persons per square kilometre, Zambia has one of the lowest population densities in Africa. Population density is however much higher than the national average in the Copperbelt, in Lusaka Province, along the railway line to the south and the southeastern part bordering Mozambique. Northern Zambia also has above national average density of population. The lower Kafue basin contains the most extensive fertile lands and the largest densely populated region of the country.

Zambia is one of the most urbanized of African countries. Close to forty per cent of the estimated urban total population live in Lusaka (538,469), 2/ the Copperbelt towns of Ndola, Kitwe, Chingola, Mufulira and Luanshya. Livingstone to the south and Petauke to the east. Other secondary towns like Kabwe, Mumbwa, Sesheke, Chililabombwe, Chingola and Isoka are growing rapidly.

1/ The preliminary report of the 1980 Census of Population and Housing published by the Central Statistical Office, Lusaka, gives the total population of Zambia as 5,679,808.

2/ Republic of Zambia, 1980 Census of Population and Housing Preliminary Report; Central Statistical Office, Lusaka, January 1981.

About 80 tribal groups make up the population of Zambia. The major tribal groupings are the Bemba speaking people (Lunda, Bemba, Jala and Bisa); the Nyanja speaking people such as the Chewa, Tumbuka, Nsenga, Ngoni, Kunda and Chikunda and the Tonga speaking people such as the Tempa, Lenje, Soli, Ila, and Toka. In addition to these dominant groups there are also migrants from Zimbabwe, a few white, coloured and Indian people.

The areas covered in this survey comprised the capital city Lusaka and the rural area of Keembe in Kabwe rural district in the Central Province. Lusaka, like many other African capital cities, has settlement patterns which portray the rapid growth in urbanization in the past two decades.

Private housing schemes have been encouraged in such areas as Roma, Kabulonga and Olympia Park and government initiated housing schemes have thrived in Kabwata, Chawama, John Howard, Garden, Kalingalinga, Chaisa, etc.. African houses in the latter group of settlements are generally small (one to three rooms only).

The rural survey was carried out in Keembe, a rural area of low population density in Kabwe Rural District in the Central Province. Keembe is a rural settlement area about 100 Kilometres from Lusaka way out of the main motor road from Lusaka to Kabwe. Thirty-three dispersed small villages were covered in the survey. These villages are spread over an area of more than 600 square kilometres. The relatively large villages covered in the survey included Mpili, Kachili, Kapopo, Chimpanshya, Chilikwella, Kanunka and Mutangama. Other villages included in the survey like Mobola, Shoba, Muchiliba, Komoka and Mpande are composed of only a few households. The concept of a village in Keembe is very different from the West African village which can trace its existence back to over a century. It is not uncommon in Keembe for a man and half a dozen of his close relatives to migrate to some unoccupied land and create a new village. Villages in Keembe are therefore in general known by the name of the "Headman", or village head and such group movements render the location of sections of whole villages a very difficult task.

The main economic activity of the population in Keembe is subsistence agriculture. In the absence of large villages, economic and social activities tend to be very parochial.

1.2 Objectives of the Survey

A major problem facing socio-economic policy makers and planners in African countries is the scarcity of reliable data on population characteristics and the dynamic factors affecting population growth rates. In an effort to improve the quality of population data for planning purposes the Government of Zambia requested the United Nations Economic Commission for Africa (ECA) to undertake a survey that would study the current levels of fertility and mortality, especially infant and childhood mortality and related socio-economic factors.

This survey was jointly undertaken by the Fertility and Mortality Studies Section of the ECA Population Division and the Central Statistical Office, Lusaka, Zambia, with financial support from the Ford and Rockefeller Foundations, UNFPA, UNTFAD, and the Government of Zambia. The survey set out to collect detailed and comprehensive demographic data and other related information, which could enhance socio-economic planning in Zambia. As in many other African countries, there is no comprehensive and reliable vital registration system and fertility and mortality data are hard to come by.

An important objectives of this survey were therefore to measure fertility and mortality levels in rural and urban communities in Zambia and to identify their interrelations to social and economic factors. This exercise seeks to throw more light on the determinants and consequences of infant and childhood mortality. It also attempts to identify cultural, economic and nutritional elements that determine the period of lactation and thereby exert influence on child spacing and fertility levels. Information was collected on the most recent closed birth interval for women aged 12-50 years and their marriage and pregnancy histories.

The survey involved a combination of retrospective and prospective methodologies to deal with the problem of omissions and seasonality of vital events. The retrospective survey involved collecting data on social and economic characteristics. The prospective survey was conducted among the women over a twelve months period and collected information on ages at menarche, age at first and subsequent marriages, age at first birth, duration of first and subsequent marriages and breast feeding practices.

Information was collected on societal and household characteristics likely to influence observed levels of infant and childhood mortality and fertility, household composition and structure, family size attitudes and preferences, patterns of food distribution and consumption in households, child feeding patterns, common morbidity problems among children under five and anthropometric measures for children 1-4 years old. Information was collected on the availability and use of health services and sources of food and water supply - factors which are considered to influence living standards and sanitary conditions in societies. These data it is expected should provide greater insight into fertility and mortality interrelationships and differentials in rural and urban communities in Zambia. They should provide greater information on determinants of infant and childhood mortality and identify possible areas of policy and programme development for reducing current high levels of mortality and fertility.

The survey investigated the extent of the knowledge and practice of birth regulation, attitudes towards acceptance and rejection of family planning methods. It also investigated how family size norms are sustained through cultural practices, values and pressures and how these interact with social and economic arrangements to influence fertility behaviour in rural and urban communities in Zambia.

2. SURVEY AREAS: Social and Demographic Background

2.1 - The Urban Survey Areas

The historical development of Lusaka resulted in compartmentalized settlement pattern in which population densities in each unit broadly identify the economic and social status of its inhabitants. The modern housing areas of Woodlands, Kabulonga, Fairview, Chelston, Olympia, Rhodes Parks, Northmead, Roma and Enasdale are characterized by beautiful bungalows with large gardens. These units have been designated low density areas in contrast to the high density areas of Matero, Kabwata, Kamwala, etc., where the houses are much smaller and living conditions more crowded. A significant proportion of the population of Lusaka are however still located in the "compounds" of George, Garden, Desai, Chaisa, John Howard, etc., where conditions of living remain very poor. These shanty towns have no permanent houses - only make-shift dwellings of mud blocks and corrugated iron sheets.

Since independence, the Government, with support from the World War Bank, launched a low-cost urban housing project in these compounds and many of these have been upgraded by the construction of simple but more permanent housing units with potable water close to or within each dwelling. The achievements of these projects have however been dwarfed by the rapid growth in the population of the city. Housing shortages remain a very serious problem in all social strata in Lusaka.

Improvements in housing conditions in Mutundere, Kaunda Square, Kalingalinga and Chawama to name only a few bear testimony of advances made in providing low-cost housing to Lusaka residents in these areas. Other "squatter" areas are yet to benefit from such structural changes and public utilities as electricity and pipe-borne water.

The "low" density areas inhabited by the high income groups make up about a tenth of the population of Lusaka although their dwellings of spacious bungalows are spread over a proportionately much wider area of the city. Within these areas, life is highly compartmentalized within each household and among a highly selective circle of close friends. The population of these areas is composed mainly of senior professional, managerial, political and other industrial and commercial employees. Most of these houses have domestic servant quarters and therefore the population of the low density area tends to include relatively poor families in an exclusively rich community. Around the periphery of the city boundary, many farm houses have sprang up in such places as Makeni and Barlaston Park.

This pattern of settlement in Lusaka creates serious transportation and other urban community problems which are further aggravated by the centralization of all government and commercial activities in the Cairo Road and Ridgeway areas. Thus a majority of Lusaka's over half a million population has to travel many kilometres to work, shop, hospital or to visit friends or relatives.

Although several clinics have been set up in the various areas of the city, the majority of Lusaka's population still rely on the University Teaching Hospital for gynaecological, obstetrical and other major medical services. For most families this involves travelling long distance.

2.2 2.2 The Rural Survey Area

Keembe characterizes a really rural environment with a typically rural, social and economic set up. Human settlements in Keembe consist of very small villages of widely scattered clusters of small huts. Most of these unites are strewn across an undulating extensive land area stretching for many kilometers. Although many of these village clusters are located along footpaths and river edges, several others are scattered in isolation and depend on wells for their water supply. The larger villages have one or two provision stores, a beer bar and in several cases a church. A peculiar characteristic of houses in Keembe area is the extremely small size of the huts. These in general are single-room dwellings with low roofs. These rural settlements are constantly shifting since a significant proportion of the population moves to new settlements after relatively short periods of stay. The introduction of corrugated iron sheets as roofing material has brought some element of permanent residence, since an increasing number of people in Keembe now invest more on building than before.

Although there are a few commercial farms on the outskirts of this area, the overwhelming majority of the people in this area are peasants whose occupation is basically subsistence agriculture. Land in this area is abundant and under customary law, any individual who establishes his residence in a village can acquire customary rights to use any land unclaimed or unoccupied. These rights are permanent unless they are extinguished by abandonment or death. There are, however, no formal individual titles to the land and it is not uncommon for significant sections of a village or a whole village to migrate to other virgin land with no intension of returning to their original place of settlement.

Most peasant farmers in this area grow a variety of food crops ranging from maize, groundnuts, beans, potatoes, and a variety of vegetable and fruits. Nearly all households rear chicken and a significant number keep cattle and goats. The little lakes (ponds) and rivers in the area provide fishing grounds for most families and during the fishing seasons whole families can be away from home for several weeks or months.

Keembe like most parts of Zambia has been for a long time both a recipient and the origin of migrants. Although a majority of the population is Lenje-speaking, there are significant numbers of people of Tonga, Nyanja, Shona and Ndebele origins. The two latter groups migrated from Zimbabwe and settled in Keembe as peasant farmers. There has been a lot of inter-marriage and most migrants have been integrated into the socio-economic and cultural life of the area.

A major social pastime activity, common to both men and women, is beer drinking. A local brew from maize is also consumed extensively. Schooling facilities are extremely poor and far apart and persons seeking medical care have to travel over long distances to get even to a rural health centre. The absence of modern means of transportation - other than the bicycle - makes travelling quite an irksome task. Although there is a rural bus service to this area, its schedules are extremely irregular and far apart.

3. ADMINISTRATION AND CONDUCT OF SURVEY

3.1 Administrative Considerations

As already pointed out this is a joint Government of Zambia and ECA survey. The design, organization and implementation of the survey was undertaken by the Fertility and Mortality Studies Section of ECA's Population Division and Central Statistical Office (CSO), Lusaka.

A number of factors influenced the timing and location of this survey. First and foremost among these was the need to minimize the effects of omissions due to memory lapse and undercount of vital events resulting from the seasonal variation in occurrence of births and deaths. The sample covered in the retrospective survey in the first round was followed systematically in the three prospective rounds enabling us to cover the survey population over a full twelve-month period. A second consideration in choosing the exact dates of the field operations for all the rounds was the need to ensure that suitable interviewers would be available. Thus the field enumeration for each round took place during the school holidays when teachers were available for enumeration. It happened that the school holidays were evenly spaced during the year to enable each round operation to be undertaken at even intervals and completed before preparatory work of the 1980 Zambian Census began.

A planning team made up of staff of the ECA Fertility and Mortality Studies Section, the Director of Statistics and his senior officials undertook the preparatory work prior to the start of the field operations for each round of the survey. The entire operation of the field enumeration and editing were directed from the Central Statistical Office (CSO) Lusaka. The CSO kindly provided office space, a classroom for training and checking and editing of questionnaires, duplicating facilities, stationery and secretariat support. The CSO stores, transport and accounts sections provided the necessary administrative support for stationery, transportation and financial management respectively.

During the first round, all interviewers employed in the rural survey were transported daily to and from Lusaka. In subsequent rounds this practice was discontinued because it was inherently risky, rather expensive, and time consuming and the team was camped in an Agricultural Extension Training Centre.

For the conduct of the field operations for the entire survey, the CSO provided the following staff: the Director as National Co-ordinator of the Project, two of his Deputy Directors and two Senior Statistical Officers as Survey Administrators, an Accounts Clerk for the Financial Management of the Project, a Liaison Officer, with the Ministry of Finance and Treasury, six Statistical Officers as Field Supervisors, two Secretariat Staff, a Transport Officer and Drivers.

Funds for the survey were obtained from various sources. An initial grant of US\$35,000 was obtained from the Ford and Rockefeller Foundations. This sum supplemented with a grant of US\$15,711 from the United Nations Trust Fund for African Development, and other resources from the Zambian Government and the ECA Population Division covered the cost of the field work. The total cost of the field operations amounted to US\$82,265. These funds were disbursed by the Central Statistical Office through the Government of Zambia Treasury. The survey fund was adversely affected by significant drops in the value of the United States Dollar and the sharp increases in the price of petrol and stationery and the ECA and Government of Zambia had to absorb these increases.

The UNFPA provided a grant of US\$15,500 to supplement the cost of data processing and US\$27,000 to cover the cost of organising a feedback seminar on the results of the survey.

3.2 Questionnaire Design and Content

A number of local factors influenced both the design and content of the questionnaires that were used in the survey. The use of standardized questionnaires was preferred for a number of reasons: firstly, the low level of literacy in Zambia ruled out the use of self-administered questionnaires; secondly, it was hoped that the use of standardized questionnaires would reduce response errors to an acceptable minimum; thirdly, checks and controls for validity and reliability of responses were easier to make; fourthly, a number of concepts and definitions could easily be explained to respondents as part of interviewing and finally, through interviewer persuasion, a higher percentage response rate could be attained.

Information on fertility, mortality and migration were collected during each of the four rounds. Standardized questionnaires were designed and used for all the four rounds in monitoring changes in household size through births, deaths and migration. During each round, the survey focussed on specific socio-economic factors which are likely to influence reproductive behaviour and mortality. For these purposes, a total of 26 schedules were administered in the four rounds as are described hereinafter.

The following special topics were covered during each of the four rounds:

First Round Survey: This was undertaken during August to September 1978 and focussed on collecting basic information on household members, demographic and socio-economic baseline information on females aged 12-50 years old, information on marriage and knowledge and use of birth regulation methods and pregnancy status and history, and number of children ever born and deaths in the last 12 months. In the first round survey, the following five schedules were administered:

Schedule 1 - Household record

It collected information on sex, age, relationship to head of household, marital status, highest education level, religion, and mother tongue of household members.

Schedule 2 Demographic Baseline Information (females 12-50 years old)

It collected information on place of birth, number of years lived in urban areas and rural areas, survival of parents, and type of work for every woman aged 12-50 years old.

Schedule 3 - Marriage Record of Women and Birth Spacing

Data were collected on number of times married, order of marriage, age at marriage, age when marriage ended and reason why marriage ended, and if polygamous marriage. how many wives husband has or had, and whether respondent was first, second etc. wife. Information on knowledge attitude and use of methods of birth regulation, was also collected.

Schedule 4 - Current Pregnancy Status Record

The information collected were age of mother, duration of current pregnancy, status of health, whether antenatal care was received, and where received and number of consultations.

Schedule 5 - Fertility and Mortality Record

For every woman, information on pregnancy order and outcome, age and sex of surviving children, age, sex and cause of death of dead children and which of these children died in the last 12 months, and other deaths in the household in the last 12 months by age, sex and deceased were collected.

Second Round Survey

It was conducted in December 1978 and focussed on bio-social factors influencing fertility, birth history and changes in household size since the first round. Information was also collected on adult mortality and orphanhood status. The following eight schedules were administered in the second round:

Schedule A - Record of Adult Mortality

Information on survival of parents, whether the respondent was the eldest living child of mother, and of father were collected.

Schedule B - Change in Household composition - Migration

For persons who left and joined the household under study since the first round, information on name, sex, age, relationship to head of household, marital status, highest level of formal education, religion, mother tongue, destination or origin of migration and reason for migration were collected.

Schedule C - Changes in Household composition: fertility and mortality

For persons born into the household or died in the household since the first round, information on sex, age, relationship to head of household, religion, mother tongue, and marital status were collected.

Schedule D - Pregnancy Status

For currently pregnant women information on duration of pregnancy, duration of last pregnancy, state of health, sex of child preferred and reason, number and sex of living children were collected.

Schedule E - Pregnancy Outcome

Outcome of pregnancy recorded in first round, whether delivery was normal, place of delivery, health of mother and child after delivery were inquired into in this round.

Schedule F - Breastfeeding and Weaning Practices

Information on whether first child, child born before the last, and most recent (last) child were breastfed, and if so, duration of breast feeding; frequency of feeding per day, age when supplementary food was given, whether breastmilk was sufficient, and type of weaning foods given to last child were collected. Also information on the interval between two births and number of children recommended by the respondent, close friends, parents and relatives, husband's parents and relatives, interval between the last two births, etc. were collected.

Schedule G - Child Birth, Breastfeeding and Abstinence

Information on the practice of sexual abstinence, the expected duration of sexual abstinence after childbirth, expected duration of breastfeeding, and should this duration be longer or shorter were collected.

Schedule H - Age at Menarche

Information on age when a woman had her first period, whether the period was regular, the duration of the menstruation period, the flow of the length of the period, age at first period of daughters who started having their periods were collected.

Third Round Survey

It was carried on April to May 1979, and focussed on changes in household composition and pregnancy status since the second round, socio-economic factors facilitating and constraining childbearing, maternal and child care, value of children, family income, socio-economic roles of women, parental concern for children's education and future socio-economic roles with the household economy. The following six schedules were administered in the third round.

Schedule I - Changes in Household Composition: Migration

Similar items of information were collected for changes in household composition due to migration since the second round as schedule B in second round.

Schedule C - Changes in Household Composition: Fertility and Mortality

Similar items of information were collected for changes in household composition due to fertility and mortality since the second round as schedule C in second round.

Schedule D - Pregnancy Status

Similar items of information on changes in pregnancy status since the second round were collected as Schedule D in second round.

Schedule E - Pregnancy outcome

Similar items of information on outcome of pregnancies recorded in first and second rounds were collected as in Schedule E of round two.

Schedule F - Socio Economic Facilitating and Constraining Factors on childbearing

1. Value of children and child care needs

In this schedule information on why couples want many children, what do you consider to be a large and a small family and reason, the number of children a woman would like to have when she reaches menopause, sex preferences in a family of 4 children and 8 children, problems associated with having a large number of children, type and place of work and earnings of children living with mother, type of help children provide in household work and outside household, what type of work do you like your children to do when they grow up, and what kind of assistance do you expect from your children when they grow up were collected.

Schedule G - Socio-Economic Facilitating and Constraining Factors on Childbearing

2. Socio-Economic Roles of Women

Information on daily routine of respondent, daily domestic activities, type of work done for pay, how freetime is spent, domestic pressures, reason for planning to have more children, membership in any organization/club, whether having many children affect a women's participation in economic and social life, whether a woman discuss with her husband about the number of children they should have, the use of family planning, the need to provide equal education for sons and daughters, opening a joint bank account for the family, etc. -- were collected.

Fourth Round Survey

This was conducted during August 1979, and the special focus of this round was nutrition: household diet, sources and regularity of food supply, water supply and sewerage system and the availability and use of medical services. Anthropometric measurements were also obtained for a sample of children 1-4 years old. The following eight schedules were administered in the fourth round:

Schedule B - Changes in Household composition: Migration

Same items of information were collected for changes since round three as Schedule B, Second Round.

Schedule C - Changes in household composition: Fertility and Mortality

Same items of information were collected for changes since round three as Schedule C, Second Round.

Schedule D - Pregnancy Status

Same items of information were collected for changes since round three as Schedule D, Second Round.

Schedule E - Pregnancy outcome

Same items of information were collected for changes since round three as schedule E, Second Round.

Schedule F - Nutritional Status, Health and Family Welfare

The information collected were: household size, rooms occupied, living children, dead children, type of foods served to the family last week for breakfast, lunch and dinner, source, quantity and cost of the food consumed, distribution of food among household members, type of foods prohibited for children under five years, and period of the year when you cannot find enough food for the family. Regarding diet for pregnant women, data on foods pregnant women should not eat in the society and reason for not eating, and when pregnant does your diet differ from what you eat when you are not pregnant, type of medicines prescribed by doctor/healer/midwife, and type of food prohibited not to eat, and during breastfeeding what special foods do Zambian women eat and what foods do they not eat were collected.

Schedule G - Water Supply and Sewerage System

Information on main source of water supply, distance of source from house, whether water was treated before drinking, times when water cannot be obtained from usual source of supply, who empties refuse bin when full and type of toilet were collected.

Schedule H - Availability and use of medical services

Information on where people go for treatment, distance from home, means of transport and cost to hospital/health centre, amount of consultation fee, whether satisfied with the type of health services received, and whether children were vaccinated against communicable childhood diseases, number of times children under five years were taken to hospital/health centre/healer in the last four weeks, etc. were collected.

Schedule I - Anthropometric Measurements: Children 1-4 years of Age

Measurements on weight, height, height/weight and arm circumference were made for each child aged 1-4 years as well as observations on general health condition of each child.

The questionnaires were printed in English and during enumerator training a great deal of emphasis was put on the proper understanding of the meaning and requirements of each question. This and the very close supervision in the field kept errors due to wrongly worded questions to a minimum. During the field operations, supervisors sat through interviews with enumerators to ensure that questions were put the right way and that appropriate answers were obtained.

3.3.1 Sample Design and Procedures

The total sample size for this survey was 2572 households consisting of approximately 5000 women aged 12-50 years. The sample size consisted of 2052 households from Lusaka, and 520 household from Keembe. This sample was obtained from a multi-stage stratified sampling scheme. The sample size was restricted by the limited budget available for the survey as well as considerations of logistics and time available for each round.

In the first instance, the sample was split into rural and urban. An original plan to have two subsamples of equal size was abandoned during the selection of a suitable rural survey area. The Keembe area was selected because of the following reasons:

- (i) it was predominantly agricultural;
- (ii) its inhabitants principally were engaged in subsistence peasant agriculture;
- (iii) it was situated far enough from an urban settlement which is likely to alter its rural character; and
- (iv) there were no large commercial farms or mining concerns in the area.

In view of limited resources, it was necessary to locate a place not too far away from Lusaka to render daily supervision expensive and transport cost exorbitant. Keembe was selected as the rural study area. The highly dispersed settlement and the homogeneity of the life style in Keembe necessitated a reduction of the rural subsample to 520 households; and the urban subsample was raised to 2052 households. All households in the selected villages were covered with the exception of fishermen who were away for fishing. All households with women aged 12-50 years were included in the study, and households with no eligible women that were noted down by the enumerator were excluded from the survey upon verification by the supervisor.

The urban subsample in Lusaka was stratified into the following strata according to the socio-economic status of residents:

- (a) Low density stratum. This was made up of the build-up areas of Lusaka inhabited by high income groups.
- (b) High density stratum. This stratum was composed of areas of the city inhabited by middle level income groups. Although buildings in these areas were solid, the small sizes of each housing unit made homes in these areas relatively overcrowded.

(c) Squatter Stratum. The squatter areas and "compounds" in Lusaka are predominantly the homes of the low income and manual workers. This stratum was further divided into "site and service" areas (initially designed to provide localized employment to inhabitants of the neighbourhood), "up graded" areas (squatter areas under government low income housing improvement schemes) and "other squatter" areas (not falling in the two former categories).

The sample size for each stratum was computed on a "PPS", probability proportional to size; where size refers to the estimate of the population size of the stratum provided by the Central Statistical Office. The number of households covered in the survey in each of the urban stratum were low density 262, high density 645, and squatter 1145. In each stratum, blocks or areas were selected with probability proportional to the population size of the areas, and within selected areas complete coverage of households was made. The urban subsample of households actually covered in the first round of the survey was 2052.

In all the Strata, residences of diplomatic, consular and non-African residents were excluded from the sample. Institutional residences such as hospitals, prisons, industrial settlement estates, police barracks, etc. were also excluded from the sample. The survey comprised four rounds at intervals of three months between August 1978 and August 1979.

The results of the survey are taken to represent the characteristics of the population studied because the survey units were self weighted and thus sampling estimation method and estimates of the sampling error are not given.

3.4 Recruitment and Training of Supervisors and Enumerators

The training which lasted one week involved lectures and discussions on the objectives and purpose of the survey, introductory concepts on population dynamics (births, death, migration, population growth etc.), methodology, questionnaire content, techniques of interviewing and methods of recording and reporting difficulties encountered in the field.

These lectures and discussions were supplemented with classroom demonstration of layout and completion of questionnaire schedules. A practical field trial was undertaken in neighbouring Lilanda township and completed schedules, supervisor reports and written tests were used to select five supervisors and thirty-five enumerators who were actually employed in the field enumeration. The educational and teacher training qualifications of the enumerators selected were as follows: three had university diplomas in education, six had full secondary school and teacher training education and twenty six junior secondary school and teacher training education. They had taught for an average of five years. Nine of the enumerators were single women and the rest were married women.

Enumerators and supervisors received further training prior to the start of field enumeration for each round. This supplementary training focussed principally on the format and content of questionnaires for the round and provided an opportunity for group discussions and practical work on difficulties encountered in the field in the last round.

Group discussions which were a permanent feature of the field operations in all rounds, provided a very practical method of identifying errors and correcting them in time. This approach ensured that enumerators went back to the household to obtain any missing information. The discussions also provided useful forums for inter-group exchange of information during field enumeration.

3.5 Publicity

Prior to the start of the field work of the First Round of the Survey, the Central Statistical Office made contacts with government, legal and political authorities to obtain the necessary clearance for the survey. These contacts involved meetings with local party officials and village headmen in the selected clusters. In these meetings, these officials were briefed on the objectives, duration and methodology of the survey and were requested to notify people living in their areas of jurisdiction to provide requisite information to enumerators.

The survey objective and duration of each round were published in the Government Gazette prior to the start of the field work for each round. It was followed up by press releases from the CSO to the local press (Zambian Daily News and Times of Zambia) and the national radio. These media publicized the objectives and purpose of the survey and emphasized the need for the public to co-operate in its implementation. The ECA MULPOC Office in Lusaka also issued a press release to publicize the objectives and progress of the survey.

3.6 Field Organization

The field enumeration for this survey was organized systematically in fulfillment of the objective of observing the sample of 5000 women aged 12-50 years, over a period of twelve months. In this light, the four rounds of the survey were organized and timed with a view to minimizing errors due to enumeration and memory lapse. It was decided to break the twelve month observation period into four observation points evenly spaced at three monthly intervals. This arrangement minimized the loss of information on vital events and enabled the survey to study many more socio-economic and cultural factors and characteristics of the population groups covered.

At the beginning of the survey, thirty-five enumerators, selected for the field work, were allocated to the various survey strata and care was taken to ensure that enumerators assigned to the "high density", "squatter" and rural areas were very fluent in the local languages mostly spoken in each of these areas. Twenty six enumerators were assigned to Lusaka and nine to Keembe. Enumerators in Lusaka were organized in four survey groups each headed by a supervisor. The allocation of numbers of households to be covered by each enumerator took into account the varying distances from one household to the other and the facility or orderly arrangement of houses.

Thus in the low density areas where distances from one villa or bungalow to another were quite long and one had to ring or knock at gates and obtain permission to enter prior to making any contacts with interviewee, enumerators covered fewer households daily. This was in contrast to the situation in the high density area where housing units were small and very closely spaced. In the squatter areas, the juxtapositioning of dwelling units and the absence of an orderly numbering of houses influenced the number of enumerators assigned to these areas.

The rural group of enumerators worked as a single team and were deployed in two or three villages, concurrently and moved around by land-rover to minimize the rather long distances between households and between villages. During the first round, the team of enumerators for Keembe were transported daily from Lusaka. This practice was discontinued in subsequent rounds for a number of reasons. Firstly, it was costly, given the high petrol prices in Zambia. Secondly, the system was very risky given the high accident rate on Zambian roads. Thirdly the amount of time allocated for interviewing was relatively short because enumerators had to spend hours travelling between Lusaka and Keembe. Finally, the economic organization in Keembe was such that women went off to the farms before enumerators arrived and the latter left before these farmers returned home. In subsequent rounds, they were camped in a nearby agricultural extension training centre.

The field enumeration lasted about three weeks in each round. Enumeration started concurrently in the urban and rural areas. Survey teams started work daily around 7.30 a.m. and stopped around 6.30 p.m. although many enumerators sometimes continued up to 7.30 p.m. Usually, each team assembled in the morning for briefing sessions during which errors and difficulties encountered in the field were discussed and resolved. New sets of questionnaires were issued for the day. Errors detected in completed and checked questionnaires were also returned to enumerators for a revisit to the household. Brief meetings were held around mid-day and at the end of each day's work in the area being covered.

Each team of enumerators was under the control of one supervisor. The field supervision was done jointly by supervisors and the ECA team of principal investigators. The national co-ordinators and field organizers also assisted in field supervision. To ensure continuous and adequate supervision, enumerators worked in close proximity in each cluster so that the first check on their work was done while they were still within the vicinity of the household concerned. The ECA team backed up the supervision in the rural area by taking turns daily to go to Keembe for field supervision and identification of errors found in completed questionnaires.

At the end of each day, completed questionnaires were checked overnight by supervisors and submitted to the ECA research team for more detailed scrutiny. Errors detected from such scrutiny were discussed during the morning meetings before enumerators went back to the field.

The main duties of each enumerators were to locate households assigned to them, complete the household schedule and conduct the main interview with the female respondent or respondents. The household number and serial numbers of interviewees were entered in a field control sheet and comments completed on the outcome of the interview and the enumerator's assessment of the respondent's attitude and co-operation. Peculiar problems affecting each interview were recorded in a notebook and raised either during a visit by the supervisor or one of the ECA principal investigators or at the group meeting the next morning.

The supervisors for the survey who were all staff members of the Central Statistical Office had the administrative tasks of collecting and distributing questionnaires and other stationery, checking the interviewing process of each enumerator, ensuring that they were driven back to their homes at the end of each day. Each supervisor also had to report immediately to the director of the field operations any unforeseen problem that arose in the course of the day.

Each supervisor was also responsible for assigning the work load to each enumerator in the team and for ensuring that each enumeration had been carried out properly and accurately. She had the duty of dealing with refusals and locating households or respondents whom enumerators could not locate.

Each supervisor also checked completed questionnaires for incompleteness, missing, impossible or inconsistent answers, and corrections were done immediately while the survey team was still in the area. In practice, supervisors sent enumerators back to the households from where responses with serious errors were detected and organized mid-day briefing meetings to assess daily progress and discuss problems encountered in the field. Supervisors undertook spot checks of households covered and frequently sat through the interviewing process to ensure that questions were correctly put to respondents and that responses were properly recorded. The system of working in small groups enabled both supervisors and the ECA team of investigators to see every enumerator several times daily.

During the entire duration of the field work, supervisors selected random sample of completed questionnaires for reinterview to assess the quality of work of the enumerators. Households were switched around during the second and subsequent rounds as a method of checking the honesty and accuracy of each enumerator.

Supervisors maintained records of household and individual women-interviews recorded. These records which were checked daily with the records for each survey area, were kept in the field operations headquarters in the CSO. Supervisors' daily records identified households and women covered and reasons for any non-response. Enumerators were expected to make three calls to refusals before handing such cases to supervisors who went to interview such women themselves. When a supervisor failed to interview such women, the questionnaires were handed over to the ECA team who attempted to locate and persuade the respondent concerned to co-operate. There were very few cases of initial refusals and only two women actually refused to participate in the survey. All enumerators and supervisors field records were submitted along with completed questionnaires for checking and editing.

During the fourth round, two of the best enumerators were promoted to supervisors because two former supervisors from the Central Statistical Office were transferred out of Lusaka. The principal investigators provided increased supervision for the two groups assigned to these new supervisors to ensure a high level of accuracy.

3.7 Preliminary Editing of Questionnaires and Reinterviewing

Throughout the field enumeration, completed questionnaires were checked prior to being sent to the field operations headquarters at the CSO. At the end of the field work, thorough and more detailed checking and editing of all completed questionnaires was carried out prior to dispatching them to the survey headquarters in ECA, Addis Ababa. This exercise was done at two levels. When each survey team completed all households assigned to them, they returned to the field operations headquarters to check all questionnaires to ensure that location, household numbers, names, serial numbers and ages of respondents were entered correctly, that all answers were recorded and that all the pages of the questionnaire schedule were contained in each household file. Supervisors organized and implemented this exercise using a check list prepared for this purpose.

When each team completed this first stage checking for each survey cluster, the questionnaires were handed to the ECA team for further checking for incomplete, inaccurate and inappropriate answers. All errors spotted were discussed with individual enumerators who went back to the field with their supervisors for reinterviewing. The questionnaire was designed in such a way as to detect omissions and inaccurate answers. Thus during the first round, women who stated that they were never married, could not also state an age at first marriage in Schedule 3. Similarly, a woman who was recorded as never been pregnant before, could not also provide fertility information on Schedule 5. In the same light, a woman who was recorded as having had her last pregnancy six years ago could not also have a child of three.

For serious problems of the types listed above, the supervisor and the individual enumerator both went back to the household to obtain the correct information. In such a case, the supervisor verified several other answers and if it was obvious that answers on completed questionnaires differed significantly from respondents answers, then the whole interview was redone. In a number of cases minor errors were corrected at the checking office. These were usually the omission of serial numbers on some pages of the questionnaires. Since these appeared on schedule D (current pregnancy status record) and E (pregnancy outcome record), they were simply transcribed onto the rest of the pages of the individual questionnaire. For serious omissions, however, a revisit was imperative. In all cases of revisits the whole questionnaire rather than specific pages of it, went back to the household. For the very careful enumerators such return to the household was less than two percent in the first round. For the slower enumerators the rate was five per cent and for the very weak enumerators it was around ten per cent. More effective enumerators were employed in revisits to the households covered by such poor enumerators.

An analysis of the errors corrected at the field operations headquarters showed that over half of these errors resulted from the failure of enumerators to transcribe calculations of dates or other estimates made in their survey notebooks onto the questionnaire. About a third of these errors involved omission of serial numbers and age on individual questionnaire sheets. The rest were errors which were easily corrected by referring to other parts of the questionnaire.

Most revisits were necessitated by what was considered impossible answers, omission of questions by enumerators, or inconsistent answers. These involved such inquiries as verifying ages of mothers and children, where either ages of first children or intervals in ages of children created a feeling of doubt about their accuracy.

4. DATA PROCESSING AND ANALYSIS

4.1 Coverage Rates by Round

The original plan of this survey was to collect information from 2500 households from the urban and rural subsamples. It was estimated that a total of 5000 women aged 12-50 years would be located in these households. However, in the actual field enumeration during the first round, 2572 households with a total population of 16508 were covered and 4282 women aged 12-50 years were interviewed in these households. A summary of the households and population covered for each survey round is presented in Table 1.

It would be observed that 2052 households and 3386 eligible women were covered in the urban subsample during the first round. The urban subsample of three strata comprised 645 households in the "High Density Stratum", 262 and 1145 in the "Low Density" and "Squatter Areas" strata respectively. The women interviewed in these three strata were 1258, 563 and 1565 respectively. During this round the rural subsample covered 520 households and 896 women were interviewed.

As would be observed from Table 1, about one fifth of these households were not covered in the second round either because they had migrated or they just could not be traced. This continuous loss of households during subsequent rounds resulted in a total loss of 31.8 per cent between the first and fourth round. This loss was slightly lower in the rural subsample (25.6 per cent) than in the urban subsample (33.4 per cent). This substantial loss of households between survey rounds is one of the major weakness of multi-round surveys, although the effect of this on the validity of the results is not well documented.

The number of women aged 12-50 who were interviewed during the survey fluctuated from round to round. The decrease in the number of these women interviewed during the second round represented about 23 per cent of those interviewed in the first round. During the third round however, 141 of the women who were not interviewed in the second round were located and included in the sample. This explains the increase from second to third round of the number of women interviewed.

The total number of women aged 12-50 years who were interviewed during the survey decreased from 4282 in the first round to 3260 in the fourth round. This represented a decrease of 23.9 per cent during the twelve month survey period. The dropout rate was much higher among rural women than urban women. This was accounted for by the "temporary" and sometimes permanent movement of whole families in Keembe to fishing areas. It also reflected the very high level of internal migration in Zambia.

In the urban subsample, the loss of eligible women between first and fourth rounds represented a drop of 17.9 per cent. Most of these were young girls who had left home for boarding school or national service. A good number of these were affected by transfers away from Lusaka.

4.2 Coding, Data Transcription and Verification

Questionnaires were checked and coding manuals prepared and tested at the end of each round prior to the start of the coding exercise. Codes were tested to ensure that they were consistent from round to round and the coding was done on the questionnaires to facilitate verification. Four Research Economics Assistants and sixteen university students from the Statistics and Geography Departments of the University of Addis Ababa were used to code the data after a brief training period. The actual coding exercise was done after each round under the supervision of the staff of the Fertility and Mortality Studies Section. The team of sixteen coders and verifiers were divided into two groups and each group was subdivided into two units. While one unit did the coding the other verified the codes, corrections were made only after consultation with the supervisory staff.

Given the complex nature of the data, and after consultations with the Data Processing Section of ECA, the data were transcribed onto cassette using an NCR 7200 type data entry terminal. The use of this terminal permitted systematic verification of records transcribed. These data were then transferred onto magnetic tape.

Table 1: Summary of Households and Population Covered
in each Survey Round

	F I R S T R O U N D					
	U R B A N				Rural	Total
	High Density	Low Density	Squatter areas	Total		
Households	645	262	1145	2052	520	2572
Survey Population	44537	2123	6420	13085	3423	16508
Women 12-50 years	1258	563	1565	3386	896	4282
	S E C O N D R O U N D					
					Rural	Total
	High Density	Low Density	Squatter areas	Total		
Households	543	190	878	1611	424	2035
Estimated Population	3886	1639	5124	10649	2924	13573
Women 12-50 years	1017	413	1182	2612	671	3283
	T H I R D R O U N D					
					Rural	Total
	High Density	Low Density	Squatter areas	Total		
Households	488	171	789	1448	394	1842
Estimated population	3432	1447	4524	9403	2655	12058
Women 12-50 years	909	414	1596	2919	505	3424
	F O U R T H R O U N D					
					Rural	Total
	High Density	Low Density	Squatter areas	Total		
Households	455	193	710	1367	387	1754
Estimated population	3226	1613	4098	8877	2607	11484
Women 12-50 years	366	394	1510	2779	481	3260

The original plan to process the data on the NCR CENTURY 151 computer system was discarded when ECA changed its computer system from NCR to HP 3000. This change-over to a more versatile machine enabled the Fertility and Mortality Studies Section with the help of WFS, London, to install the Statistical Package for the Social Sciences (SPSS) programme for processing the data. The SPSS programme was used to list all entries, check the validity and consistency of data and to tabulate and cross tabulate the data for analysis.

4.3 Data Analysis

The preliminary analysis was undertaken by the staff of the Fertility and Mortality Studies Section and the Central Statistical Office, Lusaka. The original tabulation plans were supplemented by list of tables and cross tabulations prepared after frequency tabulations prepared for each round. These tabulations were prepared in accordance with the plan of analysis which comprised the following topics:

1. Methodology
2. Family-household structure and change in Zambia
3. Marriage patterns and change in Zambia
4. Fertility levels, patterns and differentials in Zambia
5. Mortality levels, patterns and differentials in Zambia
6. Body weight, height and nutrition of Zambian children under four years of age
7. Food and feeding patterns and habits in Zambia
8. Some aspects of migration in the development of Zambia
9. Availability and use of medical facilities in Zambia
10. Breast feeding and sexual abstinence in Zambia
11. Family size preferences and child spacing patterns in Zambia
12. Knowledge, practice and attitude to birth regulation among Zambian women
13. Women and the future development of Zambia.

These topics formed the subjects of sessions of a feedback seminar organ organized in 1982 in Zambia.

Second stage analysis involved collaboration between the staff of the Central Statistical Office, Lusaka and the Fertility and Mortality Studies Section of ECA, and consisted of editing the papers for final publication on the basis of comments received from the feedback seminar, and ECA Population Division. Further analysis on some aspects of the survey will be done in due course.

4.4 Quality of Survey Data

Although the survey data was not subjected to any rigorous cleaning operation, efforts were made in the field, during the coding of questionnaires and during the transcription and verification of data to detect and correct errors. Further, tests of the quality of data were done using the SPSS programme during the tabulation of data. In surveys of this nature it is often observed that there is gross under enumeration of children under five years of age and that there is always widespread digit preference in age reporting. There is also the tendency for older persons to over state their ages and for rural females in their late forties to over state their ages.

An initial step in evaluating the age sex data was to group the data into five years age groups and draw age pyramids for the male and female population for the different survey strata. These pyramids are shown in Figure I. Their structures suggest that they show the expected broad base at the younger age groups and the effects of selective migration in the 15-40 year age group are evident.

The percentage distribution of population by broad age groups is shown in Table 2.

Table 2: Percentage distribution of population by age groups

Locality	Age group			
	0-4	10-14	15-64	65 and over
Lusaka (urban)	21.3	33.1	45.1	0.3
Keembe (rural)	19.1	34.6	43.8	2.3
Zambia (1974 sample census)	21.1	30.9	45.9	2.1

These percentages do not differ very significantly from those calculated from data obtained for the 1974 Sample Survey of Population. Further interpretation of the quality of individual questionnaire data will be related to analysis of data for each subject covered in the survey. A general observation on the two methods used in this survey is that although many researchers have advocated the use of longitudinal as against retrospective methods in fertility and mortality surveys, the former method requires a larger sample and a very organized method of dealing with dropouts from one round to the other. This is particularly pertinent in regard to mortality surveys which certainly require larger samples than ordinary fertility surveys. Finally, although surveys of this nature can be used for collecting information on types of foods consumed in each household, their use in detailed nutrition inquiries is very limited.

4.5 Characteristics of Survey Population

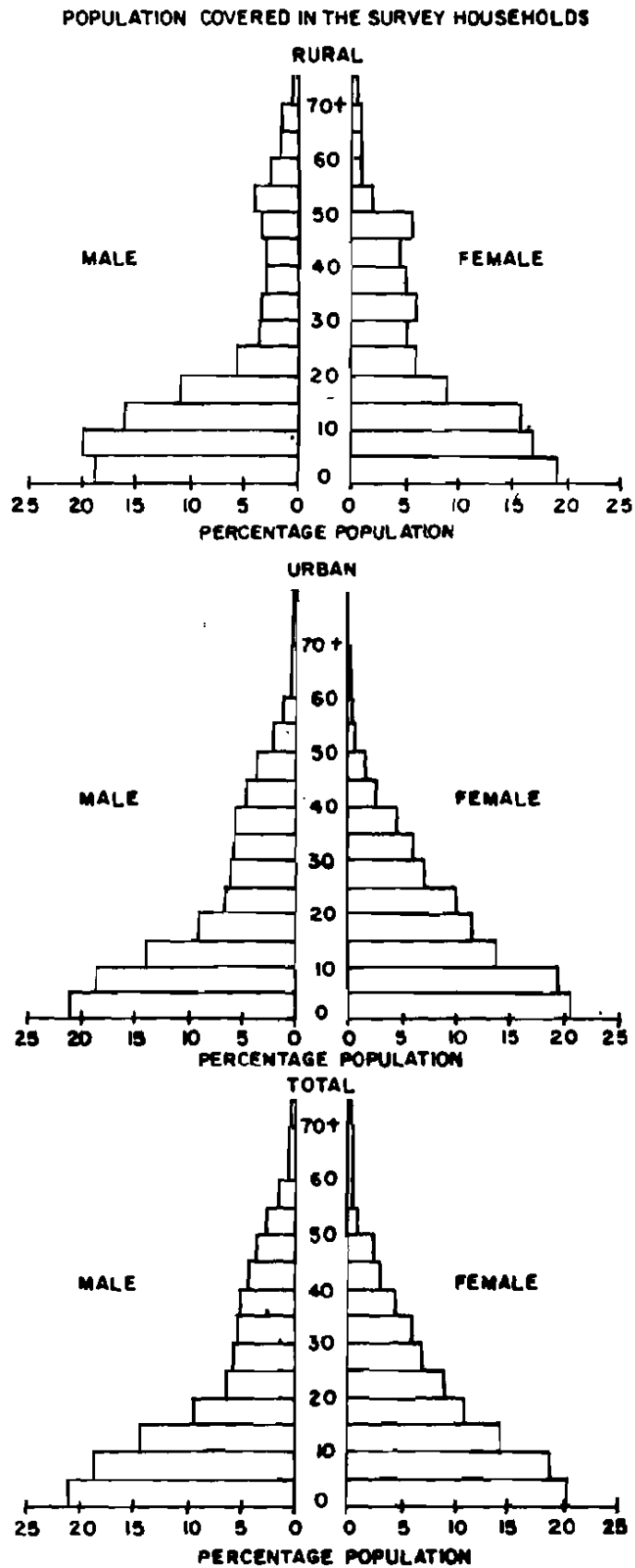
The 2572 households covered in this survey contained about 16,508 persons. Just over fifty per cent of them were female and 49.9 per cent were male. The age structure of this population presented the usual broad base age pyramid observed in most African populations. Children under five years of age constituted 20.9 per cent of the total population in the survey households. The urban population covered in this survey was relatively younger than that covered in the rural subsample. Both the urban and rural subsamples were dominated by young people: 54.4 per cent of the urban and 53.7 per cent of the rural subsamples were persons aged below fifteen years. As illustrated in figure I; there was a significant deficit of persons between 20 and 40 years of age in the rural subsample. This deficit was particularly pronounced among males. This was certainly the result of out migration from the Keembe area especially towards the urban areas. Persons above sixty years constituted only 1.2 per cent of the survey population. The sample was however purposefully biased against households with old women. Households which contained no females aged 12-50 years were excluded from the survey.

A significant proportion of the survey population were in relatively large households. In the urban subsample 62.3 per cent of the population lived in households of seven or more people. The proportion was even higher for the rural subsample (65.2 per cent). On the whole about one tenth of the urban and seventeen per cent of the rural population surveyed lived in households of twelve or more persons. The average household size was 6.4 for the urban and 6.6 for the rural population.

Classification of the survey population over 15 years of age by marital status showed that 29.2 per cent of urban and 28.0 per cent of the rural population had never been married. The percentage married was 67.3 per cent for the urban and 60.8 per cent for the rural population. The proportion divorced or separated was higher in the rural than urban area. Thus while 6.7 per cent of the rural population above fifteen were separated or divorced, only 2.3 per cent of their urban counterparts were classified as separated or divorced. The proportion widowed was also higher in the rural (4.5 per cent) than in the urban areas (1.2 per cent).

The tremendous efforts made in the field of education since independence, are reflected in educational levels reported by the survey population which were much higher than those reported in other African countries. Persons who had attended fifth grade or higher level of education constituted 62.6 per cent of the urban and 36.9 per cent of the rural population above ten years of age. In the Lusaka subsample, 26.9 per cent of the population ten years and over had been to secondary school. The corresponding rate for the rural subsample was understandably low, (4.7 per cent). The existence of greater educational facilities in Lusaka and the continuous movement of educated persons from the rural to urban areas greatly influenced this disparity.

Figure 1



5. CONCLUSION

This survey set out to collect data on infant and childhood mortality and fertility in urban and rural areas in Zambia. In order to gain greater insight into the socio-economic and cultural factors influencing fertility and mortality levels, data was also collected on household structure and composition, marital status, education, occupation and ethnic and religious affiliations of women studied. Information was also collected on such biosocial factors as child development, age at first marriage, age at first menarche, breast feeding practices, birth intervals, sexual abstinence, knowledge and use of child spacing practices. Finally, information was also collected on food supply and distribution with each household, the availability and use of medical services and the sources of water supply. These data it is hoped would provide a clearer picture of socio-economic factors affecting infant and childhood mortality and fertility in the areas studied.

The methodology of the survey which attempted to minimize errors related to memory lapse in the reporting of vital events has been able to underscore the point that mortality surveys require samples large enough to record an adequately large number of deaths for very detailed analysis. Death, even in high mortality societies is a relatively rare event.

The survey collected data on breast feeding in a manner to record the frequency, timing and intensity of breast feeding and the introduction of artificial milk and other foods. In this context information was also solicited on the timing of the return of menstruation and sexual abstinence after childbirth. These data, it is hoped, would improve our knowledge of the interrelationships among infant and childhood mortality, socioeconomic factors and fertility in urban and rural communities in African countries. We hope that this methodology will be developed for similar studies in other African countries upon designing appropriate survey procedures for the control of significant declines of survey population between rounds due to migration and problems of locating households which are inherent features of longitudinal surveys.

SURVEY TIME TABLE

1977	Preliminary discussion and submission of research proposal to Ford and Rockefeller Foundations.
February 1978	Preparation of plan of survey implementation including choice of survey areas and sample size.
March to July 1978	Finalization of questionnaires and preparatory work for First Round Survey.
August to September 1978	Listing of household areas and selection of sample households. Recruitment and training of supervisors and interviewers. Publicity field enumeration and editing: First Round.
October to November 1978	Coding: First Round questionnaires. Preparation of Second Round questionnaires.
December 1978	Retraining of interviewers and supervisors. Field enumeration and editing: Second Round.
April to May 1979	Printing Third Round questionnaires, retraining of interviewers and supervisors. Field enumeration and editing: Third Round.
1 June to 15 September 1979	Transcription and verification of First Round Data
24-29 September 1979	Printout of First Round household and individual records and tabulations on demographic baseline data.
July 1979	Printing of Fourth Round questionnaires.
August 1979	Retraining of interviewers and supervisors. Field enumeration and editing: Fourth Round.
August to Sept. 1979	Coding of Second Round Data.
15 Sept. to 28 Feb.	Transcription and verification of Second Round Data.
December 1979 to January 1980	Coding of Third Round Data.
February to May 1980	Transcription and verification of Third Round Data.
April to May 1980	Tabulation of First Round Data.
June to August 1980	Transcription and verification of Fourth Round Data.
August 1980 to April 1982	Tabulations, analysis and presentation of survey results to National feedback seminar.
October 1982 to December 1983	Revision of analytical reports and preparation for publication.

Family-household Structure and Change in Zambia

Introduction

The family has been described as the most important of human groups. It is considered essential to the survival of human species. Its functions, which vary from society to society, invariably include procreation, socialization, mutual affection and various productive activities. In all known human societies the family operates within socially prescribed rules and norms which among other things reinforce its existence and relative stability.

The term "household" was defined in this survey to include the nuclear family (married couple and their own children) and the extended family comprising grand parents, uncles, aunts, cousins, nephews and nieces who were living together under a commonly identifiable and recognized head. In view of the major orientation of this survey, single-person male households and households with no female members aged 12-50 years were excluded from the sample. The exclusion of these categories of households might therefore tend to slightly inflate estimates of average household size, although the predominance of extended family-household units in societies in developing countries limits the impact single person households can have on the total estimates.

Although there have been many sociological and anthropological studies on the family, demographic studies on the trends and variations in the size and structure of families and households, their dynamic changes according to phases of the family life cycle and factors affecting them throw greater light on the evolution and transformation of this institution in the process of modernization, industrialization and urbanization. In this survey, family structure was studied with regard to its residential arrangement, composition and size. Thus the analysis focussed on household structure rather than family structure since it did not obtain information of members of the extended family who were living permanently in households different from those in which respondents were found. The characteristics of the heads of household studied included age, sex, household size, marital status, and occupation.

Household Size

It has been postulated that declining mortality in developing countries result in moderate increases in household and family size, moderate increases in relatively large size households and families comprising six or more persons, and that declining mortality is also related to moderate decrease in relatively small-size households and families of three persons or less ^{1/}. The data from this survey suggest

^{1/} United Nations, The Determinants and Consequences of Population Trends, Vol. 1, Department of Economic and Social Affairs, New York, 1973., p. 340.

that household sizes in Zambia are relatively large. The distribution of the survey population by size of household in Table 1, shows that over three quarters of the population lived in households which contained six or more persons. These data show that large households of ten or more persons are quite common in Zambia. Thus households of ten or more persons made up more than a quarter of the survey population (25.7 per cent). In contrast, the cumulative percentages show that a very small proportion of the population (6.7 per cent) lived in households of three members or less.

Table 1 Distribution of survey population by household size

Household size	No. of persons	Percentage distribution	Cumulative percentage
1	17	0.1	0.1
2	316	1.9	2.0
3	767	4.6	6.7
4	1210	7.3	14.0
5	1674	10.1	24.1
6	2138	13.0	37.1
7	2212	13.4	50.5
8	2020	12.2	62.7
9	1903	11.5	74.3
10	1359	8.2	82.5
11	1033	6.3	88.8
12 or more persons	1853	11.2	100.0
Total	16500	100.0	-

Similar data are presented in Table 2 for urban and rural areas separately. It is evident from these data that large households predominate in both urban and rural areas. Thus 75.6 per cent of urban and 77.0 per cent of the rural population were found in households of six or more persons. About a quarter of the population (24.4 per cent) lived in households of 10 or more persons. In contrast, only a very small proportion of the population in urban and rural areas was in households with less than four persons, 6.5 per cent in the urban and 7.3 per cent in the rural areas. These indices certainly overstate the actual situation because the survey sample purposely excluded one-person male households and households which did not have females aged between twelve and fifty years. It would also be observed in Table 2 that the distributions of males and females in households of differing sizes were not very different.

The data from Lusaka show that average household size was 7.0 in the high density areas, 8.12 in the low density areas and 5.5 in the

"squatter" areas, and 6.4 for Lusaka. Data on household size in these three sub-areas of Lusaka are presented in Table 3 and summarized in Figure 1, and show that both high and low density areas of Lusaka have larger household size than the squatter area. Thus, persons in households of five or fewer members constituted 15.6 per cent of high density, 9.9 per cent of low density and 35.5 per cent of the squatter areas' population. In contrast, persons living in households of ten or more members constituted only 13.3 per cent of the population in squatter settlements as against 31.0 per cent for the high density and 44.5 per cent of the low density settlement areas. Over a fifth of all the population in the low density area lives in households of twelve or more members as compared with only 4.1 per cent in the squatter settlements.

Analysis of household size by age, however, shows a different picture. The data in Tables 4a and 4b present the distribution of the survey population by age and by household size. It would be observed in these tables that the household in Zambia as in most high fertility societies is dominated by young persons. The data in these tables show that in urban and rural communities a majority of young persons are in large households. Thus about half (47.9 per cent) of the children aged under ten years in Lusaka lived in households of eight or more persons. The proportion for persons aged 10-19 years is even higher (61.6 per cent). The picture is even more striking in rural areas where 57.7 per cent of the under ten year olds and 62.3 per cent of all persons 10-19 years of age lived in households of eight or more persons. In contrast, the proportion of persons aged 30-39 years living in households of eight or more persons was 40.9 per cent in Lusaka and 43.2 per cent in Keembe.

These data also show that a large proportion of older persons live in large households and that the proportion of old people in large households was greater in Lusaka than in Keembe. Thus 56.4 per cent of persons aged 50-59 years in Lusaka lived in households of ten or more persons as compared to 24.7 per cent of their counterparts in Keembe. This urban rural difference is even more pronounced among persons aged 60 years or more. In Lusaka 44.2 per cent of them live in households with ten or more persons as compared to 23.6 per cent of the persons in this age group in Keembe.

It would be observed from the data that about half of the urban households and 46 per cent of the rural households studied in this survey contain seven or fewer persons. The average household size calculated from these data was 6.4 for Lusaka and 6.6 for Keembe. Although these indices are higher than United Nations estimates of household size in Zambia of 4.3 for 1980 they are comparable to average household sizes estimated for Botswana (6.79 for 1980) and for Zimbabwe (5.7) for 1980^{2/}. Part of the explanation for the higher average household size from the survey is due to selective omission of households with no eligible women aged 12-50 years and single person male households and this has a tendency to omit small sized households.

^{2/} United Nations, Estimates and Projections of the number of Households by Country 1975-2000, Department of International Economic and Social Affairs. ESA/P/MP.73, 15 May 1981 p. 65.

Table 2. Distribution of population by household size and sex: Urban, Rural, Zambia

Size of household (Number of persons per household)	U R B A N						R U R A L					
	MALE		FEMALE		BOTH SEXES		MALE		FEMALE		BOTH SEXES	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	0	0.0	10	0.2	10	0.1	-	-	7	0.4	7	0.2
2	110	1.7	121	1.9	231	1.9	31	1.9	54	3.1	85	2.5
3	290	4.4	310	4.9	600	4.6	60	4.1	91	5.2	159	4.6
4	472	7.2	522	8.0	994	7.6	106	6.4	110	6.3	216	6.3
5	635	10.4	669	10.3	1354	10.3	150	9.0	170	9.7	320	9.3
6	864	13.1	871	13.4	1735	13.3	200	12.0	203	11.5	403	11.8
7	938	14.3	953	13.6	1826	14.0	193	11.9	194	11.0	392	11.5
8	878	13.4	807	12.4	1685	12.9	162	10.9	153	8.7	335	9.8
9	729	11.1	700	10.9	1437	11.0	219	13.1	247	14.0	466	13.6
10	530	8.2	540	8.3	1070	8.2	133	8.0	148	8.4	281	8.2
11	435	6.6	423	6.6	860	6.6	90	5.4	75	4.3	165	4.8
12 or more	632	9.6	627	9.6	1259	9.6	280	17.3	306	17.4	594	17.3
Total	6571	100.0	6513	100.0	13085	100.0	1665	100.0	1750	100.0	3423	100.0

Table 3: Distribution of population by household size and sex, Lusaka, Zambia

Household size	URBAN HIGH DENSITY						URBAN LOW DENSITY						SQUATTER AREAS					
	MALE		FEMALE		BOTH SEXES		MALE		FEMALE		BOTH SEXES		MALE		FEMALE		BOTH SEXES	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	-	-	8	0.4	8	0.2	-	-	-	-	-	-	-	-	2	0.1	2	0.0
2	19	0.8	21	0.9	40	0.9	3	0.3	6	0.5	9	0.4	23	2.7	94	3.0	132	2.9
3	55	2.4	60	2.7	115	2.5	17	1.6	17	1.5	34	1.6	213	6.7	241	7.6	459	7.1
4	106	4.7	114	5.0	220	4.9	28	2.7	36	3.2	64	3.0	333	10.4	372	11.7	710	11.1
5	165	7.2	160	7.1	325	7.2	43	4.6	57	5.2	105	4.9	472	14.5	452	14.3	924	14.4
6	313	14.0	312	13.8	630	13.9	86	8.3	106	9.7	192	9.0	460	14.2	453	14.3	913	14.2
7	322	14.1	322	14.3	644	14.2	80	7.7	94	8.6	174	8.2	536	16.5	472	14.9	1008	15.7
8	305	13.4	286	12.7	591	13.0	149	14.4	140	12.8	289	13.6	424	13.0	381	12.0	805	12.5
9	236	12.5	272	12.1	550	12.3	157	15.2	153	14.5	315	14.8	236	7.5	278	8.8	564	8.8
10	213	9.3	215	9.5	428	9.4	152	14.7	150	14.5	310	14.6	173	5.3	167	5.3	340	5.3
11	207	9.1	210	9.3	417	9.2	101	9.7	97	8.9	198	9.3	127	3.9	126	4.0	253	3.9
12 or more	228	12.5	275	12.2	561	12.4	215	20.8	223	20.4	433	20.6	131	4.0	129	4.0	260	4.1
Total	2282	100.0	2255	100.0	4537	100.0	1036	100.0	1092	100.0	2128	100.0	3253	100.0	3167	100.0	6420	100.0

Figure 1: Percentage distribution of population by household size , Lusaka, Zambia

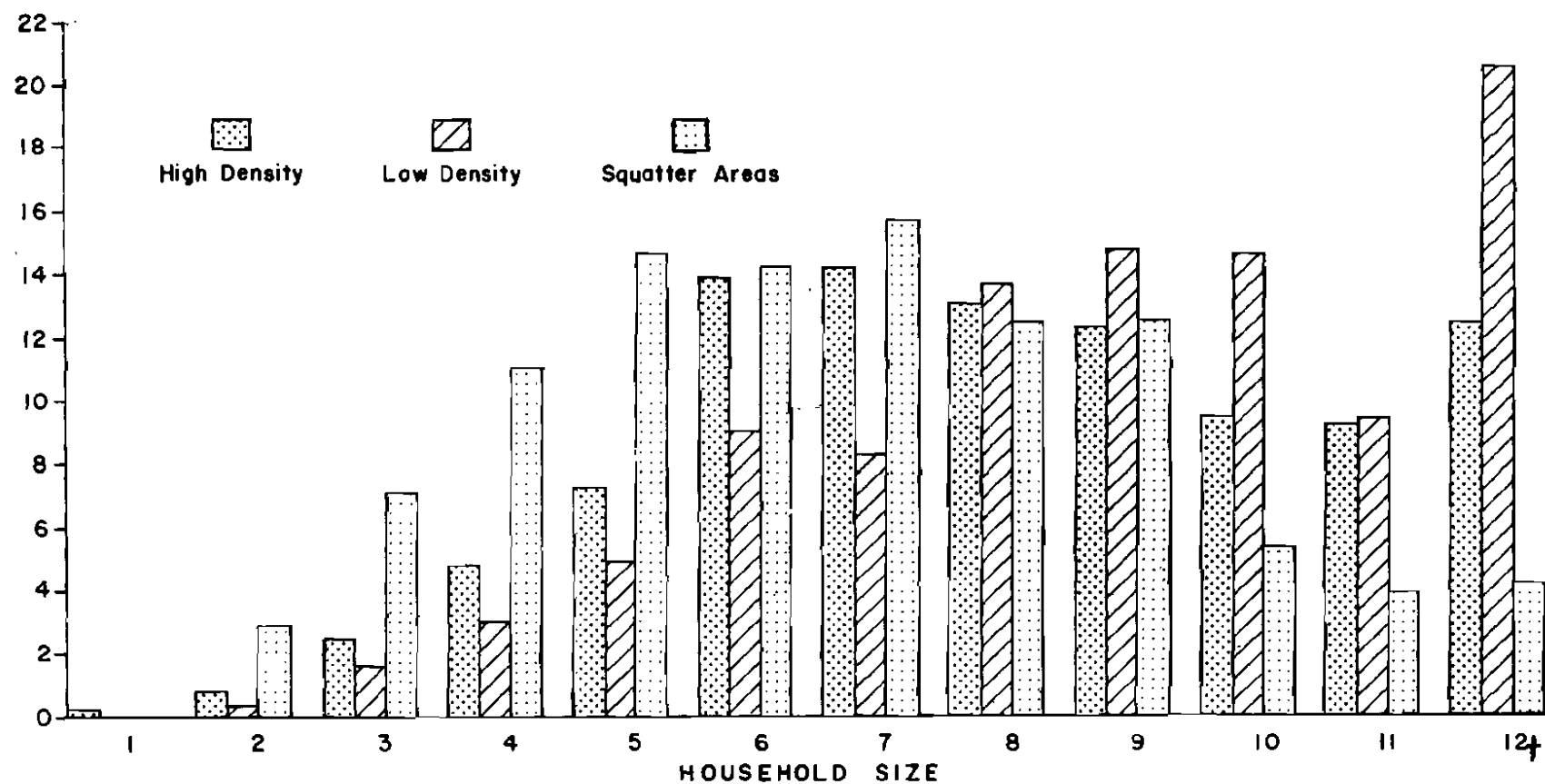


Table 4a: Distribution of Population by Age and Size of Household, Lusaka

Age Group	HOUSEHOLD SIZE											
	1-3		4-5		6-7		8-9		10 & over		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
0-9	130	2.4	994	15.8	1581	29.9	1216	24.3	1246	23.6	5267	100.0
10-19	157	4.9	319	10.0	751	23.5	980	30.7	985	30.9	3192	100.0
20-29	319	16.1	571	20.3	462	23.3	207	14.4	346	17.4	1905	100.0
30-39	120	8.2	279	15.2	462	31.3	219	12.9	305	21.0	1455	100.0
40-49	50	6.2	131	16.1	220	27.1	207	25.3	206	25.3	614	100.0
50-59	19	6.9	43	15.6	71	25.7	59	21.4	33	30.4	275	100.0
60 and over	3	5.3	5	15.4	10	19.2	6	15.4	23	44.2	52	100.0
Not stated	1	4.0	3	12.0	4	16.0	6	24.0	11	44.0	25	100.0
Total	849	6.2	2340	16.9	3561	26.0	3122	25.5	3205	25.4	13015	100.0

Table 4b: Distribution of population by age and size of household, (rural Keembe)

Household size	1 - 3		4 - 5		6 - 7		8 - 9		10 & over		Total	
Age group	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
0-9	56	4.3	124	14.3	305	23.7	329	25.6	414	32.1	1238	100.0
10-19	38	4.2	100	12.0	189	21.0	237	26.3	329	36.5	901	100.0
20-29	62	17.0	76	21.6	72	21.6	43	12.3	33	25.5	349	100.0
30-39	20	9.3	54	13.0	87	22.9	66	21.9	66	21.9	301	100.0
40-49	39	13.6	52	13.1	60	20.9	64	22.3	72	25.1	287	100.0
50-59	16	9.4	31	13.2	45	20.5	36	21.2	42	24.7	170	100.0
60 and over	8	7.3	21	25.4	23	25.5	20	10.2	26	23.6	110	100.0
Not stated ¹	3		3		2		6		2		16	
Total	250	7.3	536	15.7	795	23.2	801	23.4	1040	30.4	3422	100.0

These data suggest that household sizes in Lusaka are influenced by the availability of suitable accommodation and adequate resources at the disposal of the household. Thus, in the squatter areas where accommodation is poor, pipe water and electricity not always available and where incomes of heads of households are low, the households are generally small. Although household membership is large in the high density areas inhabited generally by persons of regular employment in the lower professional and technical grades, the largest households tend to be found more frequently in low density areas where the higher professional, technical and managerial classes live and where ample living space, availability of the electricity and pipe borne water and a more regular supply of food attracts more relatives from rural areas than other areas of the city with poorer amenities. Thus, persons classified as relatives constituted 19.0 per cent of all household members in these areas.

Household Size by Number of Rooms

This evidence led us to examine the number of rooms available within each household for the different strata of the sample. These data presented in Table 5 show that most households live in very small lodgings. Only in the low density areas of Lusaka do households have several dwelling rooms. Thus, while over half the households in these areas had six or more rooms, only one household in the high density and 6.5 per cent of the squatter households had six or more dwelling rooms. In contrast 53.1 per cent of the households in squatter areas had less than three dwelling rooms. In high density areas where the houses are generally of uniform design, 91.6 per cent of all households lived in dwellings of between two and four rooms.

In the rural areas, the dwellings resemble the pattern observed in the urban squatter areas. Most households live generally in very small dwellings. Thus, 57.4 per cent of all rural households lived in dwellings of less than three rooms. In these areas only about a tenth (10.9 per cent) of the households had five or more dwelling rooms.

Table 6 relates household size to number of rooms occupied by household. It can be noted that almost all households in urban high density areas of Lusaka lived in household dwellings which had less than five rooms. In these areas smaller households had fewer rooms. Thus, 44.7 per cent of the households with 1-2 rooms only had 6 or fewer members, compared to 70.0 per cent for the squatter areas, and 65.7 per cent for the rural areas. These percentages were much higher than in the low density areas where there were no households of 1-2 rooms with six or fewer members and where the majority of households had over seven dwelling rooms. This evidence suggests that household size in Zambia is related to the availability of rooms in the dwelling unit. Thus, in urban low density areas a greater number of rooms almost invariably implies a large

Table 5: Distribution of Households by number of rooms occupied: Lusaka, and Keembe

Location	Number of Rooms Occupied											
	ONE		TWO		THREE		FOUR		FIVE OR MORE		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
High density	32	5.0	214	33.2	224	34.7	172	26.7	3	0.4	645	100.0
Low density	1	0.4	4	1.5	27	10.3	28	10.7	202	77.1	262	100.0
Squatter areas	176	15.4	434	37.9	227	19.8	146	12.8	162	14.1	1145	100.0
Total Urban, Lusaka	209	10.2	652	31.8	478	23.2	346	16.9	367	17.9	2052	100.0
Rural Keembe	116	22.3	187	36.0	101	19.3	58	11.2	58	11.2	520	100.0

Table 6 Distribution of Households by Household Size and Number of Rooms Occupied Lusaka and Keembe

Household Size	Number of Rooms Occupied							
	1 - 2		3 - 4		5 or More Rooms		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Urban High Density (Lusaka)								
1-4	44	17.9	40	12.1	1	33.3	93	14.4
5-6	66	26.8	69	17.4	1	33.3	136	21.1
7-8	57	23.2	123	32.3	-	-	180	28.7
9-10	44	17.9	79	20.0	-	-	123	19.1
11 or more	35	14.2	72	18.2	1	33.3	108	16.7
Total	246	100.0	396	100.0	3	99.0	645	100.0
Urban Low Density (Lusaka)								
1-4	-	-	1	1.8	16	7.5	17	6.5
5-6	-	-	16	29.1	27	13.4	43	16.4
7-8	4	30.0	10	13.2	67	33.3	81	30.0
9-10	-	-	17	30.9	47	23.3	64	24.4
11 or more	1	20.0	11	20.0	45	22.3	57	21.3
Total	5	100.0	55	100.0	202	100.0	262	100.0
Urban Squatter Area (Lusaka)								
1-4	224	36.7	61	16.4	16	9.9	301	26.3
5-6	203	33.3	115	30.3	29	17.0	347	30.3
7-8	139	22.8	99	26.5	42	29.6	280	25.0
9-10	38	6.2	61	16.4	45	27.0	144	12.6
11 or more	6	1.0	27	9.9	24	14.0	57	5.0
Total	610	100.0	373	100.0	162	100.0	1145	100.0
Rural (Keembe)								
1-4	122	40.3	29	12.2	6	10.3	157	30.2
5-6	77	25.4	32	20.1	4	6.6	113	21.7
7-8	69	22.0	47	29.6	13	22.4	129	24.0
9-10	28	9.2	33	20.0	15	25.0	76	14.6
11 or more	7	2.3	10	11.3	20	34.5	45	8.7
Total	303	100.0	159	100.0	58	100.0	520	100.0

number of persons in the household. The data for the high density and squatter areas of Lusaka, and rural Keembe suggest that increases in household size depend on availability of adequate housing and in housing conditions.

Household relationships

A distinct characteristic of the extended family system in African societies is the presence within each household of persons who are not the off-spring of the head of household. Such persons are usually relatives or even persons unrelated to either the head of household or his/her spouse. An analysis of these household relationships, presented in Table 7 shows that about fourteen per cent of all persons in Lusaka were relatives of heads of households. The proportion of relatives in the household was even higher in rural Keembe where a fifth of all persons in the households surveyed were classified as relatives. Heads of households constituted only 15.7 per cent of the total number of persons in their households in Lusaka. This proportion

Table 7: Distribution of population by relationship to head of household: Zambia

Relationship to head of household	Urban		Rural	
	Number	Per cent	Number	Per cent
Head	2052	15.7	520	15.2
Wife	1943	14.9	467	13.6
Son	3745	28.6	912	26.6
Daughter	3460	26.5	826	24.2
Relative	1830	14.0	695	20.3
Unrelated	47	0.3	3	0.1
Total	13025	100.0	3427	100.0

was almost the same as that recorded in rural Keembe (15.2 per cent). The evidence in Table 7 also indicates that the practice of living with non-relatives is not widespread in Zambia and that households invariably consist of related persons. Thus only 47 out of the 13025 people covered in the Lusaka sub-sample were regarded as unrelated to the head of the household in which they lived. The offspring of the head of household (sons and daughters) constituted the largest proportion of all members of the households surveyed both in Lusaka and Keembe. The higher urban than rural proportion of offsprings observed indicate that in urban areas children mainly live with their parents whereas in rural areas children live elsewhere with their relatives.

The data in Table 7 also indicate that even in the urban environment where cultural values and norms are gradually breaking down, kinship and

the structure of the extended family is still very much a reality. Thus, persons still seek the homes of their cousins and uncles when they go to the urban areas and in general they are welcome. The lower urban than rural percentage of relatives in households surveyed would suggest a gradual reduction in the unlimited acceptance of the freedom of sons to live in any household belonging to a next of kin and the difficulty of doing so in the urban areas where accommodation and constant supply of extra food rations are becoming increasingly difficult. It remains true to say that the household in Zambia is greater than a nuclear family although it does not comprise a single dwelling unit for an extended family.

Further insight into the structure of the household in Zambia can be obtained from analysis of the relationship of its members to the head of household. These data, which are presented in Table C, show that household heads constituted only 15.7 per cent of the urban and 15.2 per cent of the rural population covered in the survey. In both areas siblings made up over half the total population - 55.1 per cent in Lusaka and 50.3 per cent in Keembe. Of particular interest is the significant percentage of members of households who were classified as relatives. Thus, 14.0 per cent of the urban population and 20.3 per cent of the rural population were relatives to the head of the household in which they lived. Non-relatives in households constituted a negligible proportion of all members (0.4 per cent in the urban and 0.1 per cent in the rural areas).

As already indicated low density areas had a higher percentage of relatives (19.0 per cent), the corresponding figures for the high density and squatter areas were 17.2 per cent and 10.0 per cent respectively.

Characteristics of Heads of Household

An important factor in the study of family-household structure and change is the question of the age at which persons become heads of households and the incidence of female headship in the society under study. This is particularly relevant in African societies where the household usually, as pointed out above, comprises more than one nuclear family and where particularly rural household heads are usually elderly male persons. Analysis of headship rates throughout the world shows that headship rates are generally higher for males than females within each age group 3/.

The data on age and sex specific headship rates calculated by taking ratios of heads of household to total population in a given age group for Lusaka and Keembe presented in Table 9 show similar higher rates for males than females at all ages. The evidence from these data which are summarized in Figure II, shows that the age-specific headship rates rise

3/ United Nations, Ibid, p.p. fig. 1

Table 3: Percentage distribution of population by relationship to head of household, Urban and Rural Zambia

Locality	Relationship to head of household						Total Population
	Head	Wife	Son	Daughter	Relative	Unrelated	
Urban (Lusaka)	15.7	14.5	20.6	26.5	14.0	0.4	13035
Urban (High Density)	14.2	12.7	20.7	25.7	17.2	0.5	4537
Urban (Low Density)	12.3	11.1	23.1	20.3	15.0	0.5	2120
Urban (Squatter)	17.8	17.4	21.0	26.5	10.1	0.2	6420
Rural (Leembe)	15.2	13.6	25.7	24.2	20.3	0.1	3423

rapidly among urban and rural males after twenty years of age. The peak rates among both groups are about the same although urban males attain their headship peak rate before forty years of age and that very few become heads of household before reaching the age of twenty years. This difference in increases by age in headship rates between urban and rural males suggest that because of the economic and social structure of urban life, most young adult males have to set up independent households at ages relatively younger than their counterparts, who in rural areas, tended to remain under the control of an older head of household till later in life. After sixty years of age the rates drop faster among males in urban areas than those in rural areas. The data suggest that old age dependency is a greater burden in urban areas than in rural areas where the strict employment arrangements of the urban areas do not apply and where many males after sixty remain effective heads of household. The comparatively low rate among urban resident males aged over sixty-five may probably be depressed by the continuous movement of old people from rural to urban areas to live with sons and daughters who are settled in urban areas although the extent of movement from urban to rural areas among these persons is not known. In a number of cases, some of these old men who came temporarily for medical care are retained by their offspring to spend the rest of their lives in company of their children and grand children.

The age specific headship rates among women as can be observed in Table 9 are considerably lower at each age group than the rates recorded for males. Among urban women the rates remain below ten per cent up to forty-five years of age and the peak, attained in the early fifties is only 22.2 per cent. Thereafter it drops rapidly. Although the age specific headship rates for rural females aged over thirty five are higher than those of their urban counterparts they remain far lower than those of men and the peak rate among the 60-64 year age group attains only 40 per cent. These differences suggest that rural women tend to be relatively more independent than urban women in household formation. The higher rural than urban rates among women above fifty years of age may probably be due to the constant movement of widows from the urban areas to the rural areas where they set up independent households, and to the non return of husbands who went off to work in mining centres, and to the fact that older rural women become heads of household after the death of their husbands.

This suggestion is supported by the data on the distribution of heads of households by marital status and sex presented in Table 10. These data show that 2.2 per cent (46) of the 2052 urban households and 8.2 per cent (43) of the 520 rural households were headed by widows. It is evident from the data in Table 10, that most households in urban and rural communities are headed by married males. Thus, 99.5 per cent of all households in the urban subsample were headed by married males. The corresponding percentage for the rural subsample (Keembe) was 98.9 per cent. Currently married women constituted only 6 per cent of female heads of households in Lusaka and 9.4 per cent of female heads in Keembe.

Table 9: Age and sex specific headship rates in Urban (Lusaka) and Rural (Keembe) areas in Zambia

Locality	Sex	A G E G R O U P												Total
		15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65	Not stated	
Urban (Lusaka)	Male	0.7	21.6	79.4	93.5	96.8	97.4	99.1	98.0	94.8	92.3	66.6	80.8	64.0
	Female	0.3	2.7	6.2	5.5	6.4	7.0	17.8	22.2	15.4	0.0	9.1	0.0	4.5
Rural (Keembe)	Male	1.1	26.3	48.3	67.3	83.0	97.8	96.5	97.1	97.8	100.0	87.2	92.9	41.6
	Female	0.0	1.9	4.4	8.8	13.2	17.3	26.5	26.2	31.3	40.0	12.5	50.0	8.6

Figure II: Age and Sex specific headship rates in urban (Lusaka) and rural (Keemba) areas in Zambia

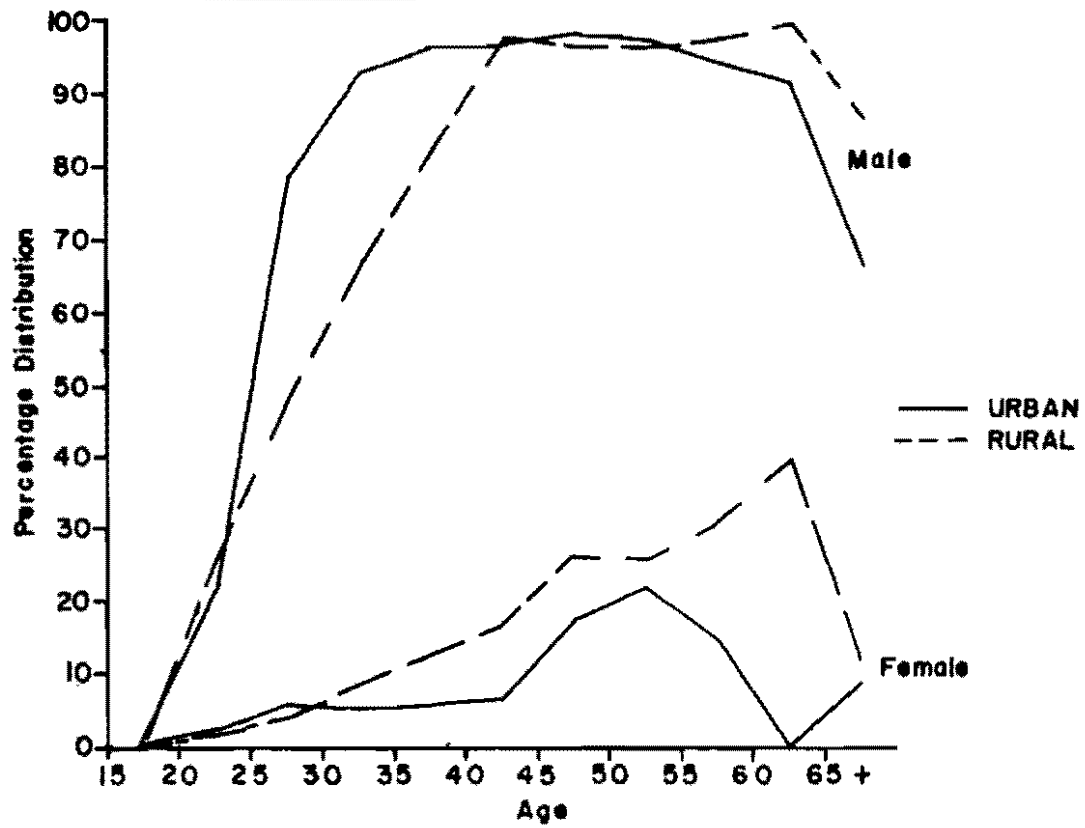


Table 10: Distribution of heads of households by marital status and sex, urban (Lusaka)
and rural (Keembe) areas in Zambia

Marital Status		U R B A N						R U R A L					
		Male		Female		Both sexes		Male		Female		Both sexes	
		No.	%	No.	%	No.	%%	No.	%	No.	%	No.	%
Never married	Number	55	16.7	25	83.3	30	100.0	1	33.3	2	66.7	3	100.0
	Percent	0.0	3	18.8		1.5		0.2		2.1		0.6	
Married	Number	1910	99.6	8	0.4	1918	100.0	419	97.9	9	2.1	428	100.0
	Percent	99.5		6.0		93.5		98.9		9.4		82.3	
Separated	Number	1	9.1	10	90.9	11	100.0	-	-	-	-	-	-
	Percent	0.0		7.5		0.5		-	-	-	-	-	-
Divorced	Number	-	-	44	100.0	44	100.0	1	2.3	42	97.7	43	100.0
	Percent	-	-	33.1		2.1		0.2		43.8		8.3	
Widowed	Number	3	6.1	46	93.9	49	100.0	3	6.5	43	93.5	46	100.0
	Percent	0.2		34.6		2.4		0.7		44.8		8.8	
Total	Number	1919	93.5	133	6.5	2052	100.0	924	81.5	96	18.5	520	100.0
	Percent	100.0		100.0				100.0				100.0	

The data presented in Table 10 also show that women, in general, become household heads only when their marriages are terminated by separation, divorce or death of husband. Thus 75.2 per cent of all urban female household heads and 32.6 per cent of all rural females household heads were either widowed, divorced or separated. Furthermore, 93.3 per cent of all unmarried household heads in Lusaka were female. Although few rural households were headed by unmarried persons, two out of three unmarried households heads were women.

Table 10 also shows that only 6.5 per cent of the urban heads of household were women. The corresponding percentage for rural Keembe was 18.5 per cent.

Differences in family household structure among different socio-economic groups in Lusaka are further highlighted in Table 11 which presents the distribution of population by age and relationship to head of household for Lusaka. The evidence from these data suggests that there were more persons per head of household in the low density areas and that persons classified as unrelated constituted an insignificant proportion of the population surveyed. This group was more significant in the high and low density areas where they were probably employed as domestic helpers since households in these areas tended to have more working couples than those in the squatter areas.

The data presented in Table 11 show that most children stay with their parents until they attain adulthood. These data suggest that few children stay with their parents after the age of 15 years. Most of them go off to set up independent households. The data also show that most persons classified as relatives or unrelated persons were children and young persons below twenty five years of age. Although few persons became heads of household below twenty five years of age, the heads of household in the squatter areas tended to be younger than those in low and high density areas of Lusaka.

These differences stand out clearly in the data presented in Table 12 and Figure III showing the distribution of heads of household by household size for different strata in Lusaka. The evidence here further indicates that low density areas had on average larger households. Correspondingly, household heads in these areas had a greater number of members to look after than heads of households in the squatter settlement areas.

Further evidence of differences in household structure in Zambian society is presented in Table 13a and 13b. The data in this table show the distribution of heads of household by age, sex and size of household for urban and rural areas. They suggest significant differences in the age structures of heads of household in the rural and urban areas. About two thirds (65.3 per cent) of the heads of household in the squatter area were less than forty years old. This percentage contrasted significantly with that recorded for the rural subsample (31.5 per cent).

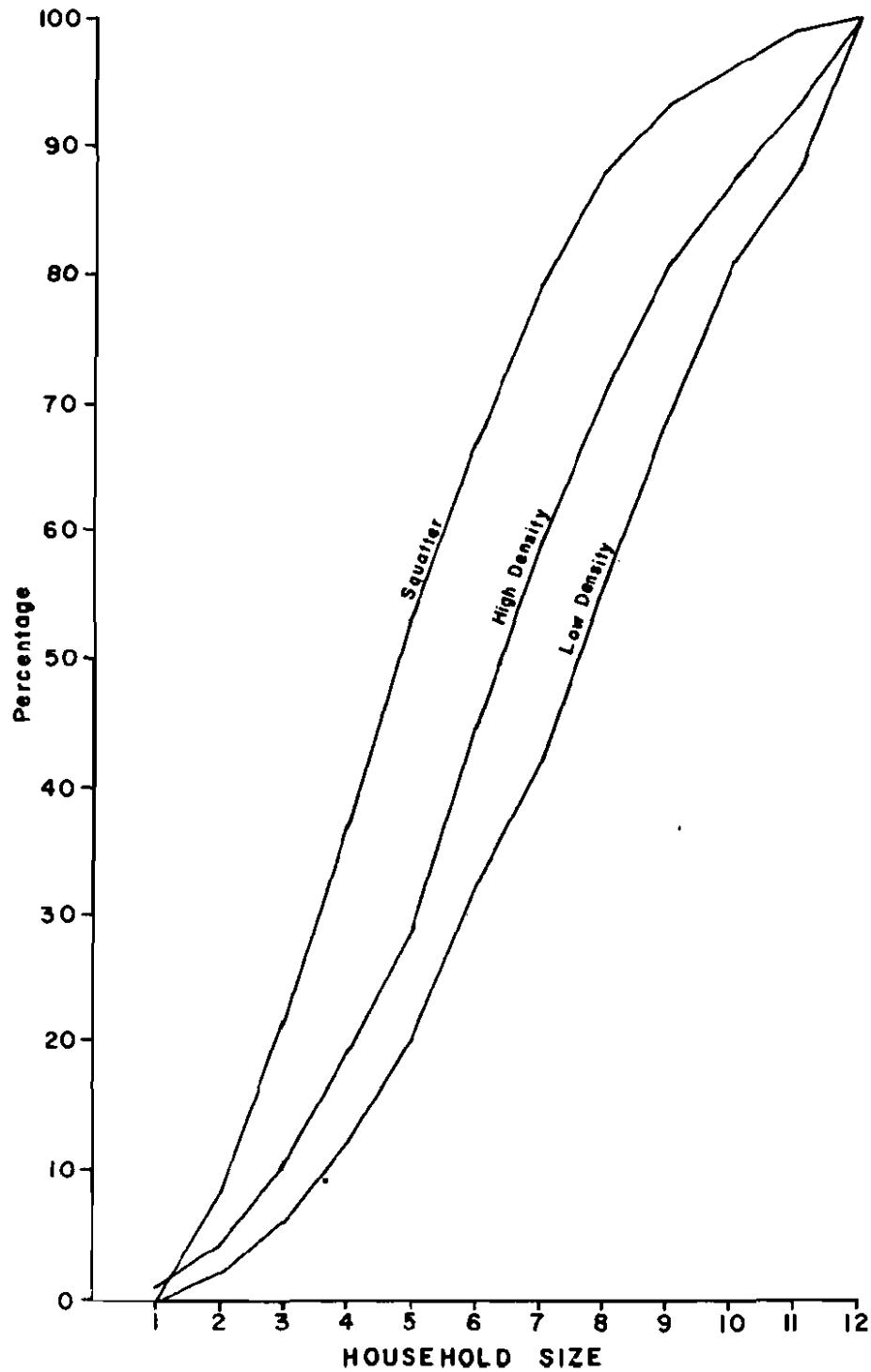
Table 11: Distribution of population by age and by relationship to head of household, Lusaka, Zambia

Age Group	Head		Wife		Son		Daughter		Relative j		Unrelated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<u>URBAN HIGH DENSITY</u>														
0-- 4	-	-	2	0.3	1106	82.1	958	82.1	393	50.3	1010	45.5	2468	54.4
15 - 24	25	3.9	140	24.4	222	16.5	198	17.0	311	39.8	10	45.5	906	20.0
25 - 34	193	29.9	222	38.6	19	1.4	11	0.9	36	4.6	-	-]	482	10.6
35 - 49	309	47.9	198	34.4	-	-	-	-	17	2.2	2	9.0	526	11.6
50+	118	18.3	13	2.3	-	-	-	-	24	3.1	-	-	155	3.4
Total	645	100.0	575	100.0	1347	100.0	1167	100.0	781	100.0	22	100.0	4537	100.0
%		14.2		12.7		29.7		25.7		17.2		0.5		100.0
<u>URBAN LOW DENSITY</u>														
0- 4	--	-	1	0.4	473	79.1	502	83.4	171	42.3	3	30.0	1150	54.0
15 - 24	2	0.8	50	19.8	109	18.2	92	15.3	195	48.3	4	40.0	452	21.2
24 - 34	91	34.7	138	54.8	16	2.7	8	1.3	23	5.7	3	30.0	2271	12.7
35 - 49	140	53.4	59	23.4	-	-	-	-	6	1.5	-	-	2266	9.7
50+	29	11.1	4	1.6	-	-	-	-	9	2.2	-	-	42	2.0
Total	262	100.0	252	100.0	598	100.0	602	100.0	404	100.0	10	100.0	2228	100.0
%		12.3		11.8		28.1		28.3		19.3		0.5		100.0
<u>URBAN SQUATTER</u>														
0 - 14	-	-	-	-	1589	88.2	1546	91.0	367	56.9	8	53.3	3508	54.6
15 - 24	91	7.9	441	39.5	205	11.4	145	8.5	211	32.7	5	33.3	1098	12.1
25 - 34	443	38.7	416	37.3	8	0.4	6	0.4	39	6.0	1	6.7	913	14.2
35 - 49	489	42.7	249	22.3	-	-	2	0.1	12	1.9	1	6.7	753	11.7
50+	122	10.7	10	0.9	-	-	-	-	16	2.5	-	-	148	23.1
Total	1145	100.0	1116	100.0	1800	100.0	1699	100.0	645	100.0	15	100.0	6420	100.0
%		17.6		17.4		28.0		26.5		10.1		0.2		100.0

Table 12: Distribution of heads of household by household size, Lusaka

Household Size	HIGH DENSITY		LOW DENSITY		SQUATTER		CUMULATIVE PERCENTAGES		
	Number	Percent	Number	Percent	Number	Percent	High Density	Low Density	Squatter areas
1 person	8	1.2	-	-	2	0.0	1.2	-	0.0
2 persons	20	3.1	5	1.9	91	7.9	4.3	1.9	7.9
3 "	38	5.9	11	4.2	153	13.4	10.2	6.1	21.3
4 "	55	8.5	16	6.1	177	15.4	18.7	12.2	36.8
5 "	65	10.0	21	8.0	185	16.3	28.7	20.2	53.1
6 "	105	16.3	32	12.2	153	13.4	45.0	32.4	66.5
7	92	14.3	25	9.5	145	12.7	59.3	41.9	79.2
8 "	75	11.6	36	13.8	100	8.7	70.9	55.7	87.9
9 "	63	9.8	35	13.4	63	5.5	80.7	69.1	93.4
10 "	43	6.7	31	11.8	33	2.9	87.4	80.9	96.3
11 "	38	5.9	18	6.9	23	2.0	93.3	87.8	98.3
12 or more persons	43	6.7	32	12.2	20	1.7	100.0	100.0	100.0
Total	645	100.0	262	100.0	1145	100.0			

Figure III: Cumulative percentage distribution of heads of households by size of household, Lusaka



It is also significantly higher than the percentages for the high and low density areas where about half the heads of households were reported to be less than forty years old. It can also be observed from these data that 41.1 per cent of the rural heads of household were over fifty years of age compared to only 18.3 per cent for the urban high density, 11.1 per cent for the low density and 10.6 per cent for the urban squatter areas. It is also evident from these data that in urban areas women who were heads of household were found generally in households of 1-5 persons only and that these women were often below forty. In contrast, the rural women who were heads of households were generally above forty years of age. In fact, in rural areas women constituted almost a fifth (18.5 per cent) of all heads of household while in urban areas the proportion of heads of household who were female was less than five per cent.

Information on the educational background of heads of household which is presented in Table 14 show significant differences in the distribution of household heads by place of residence. These data show that the majority of heads of household in the low density areas of Lusaka had at least secondary education. Close to one third (29.6 per cent) of all heads of household in these areas had post secondary education. The evidence from these areas contrast with that from Keembe (rural) where 37.2 per cent of all heads of household had no formal education. In fact in the rural areas only 5.2 per cent of the heads of household had some secondary or teacher training education.

A comparative analysis of the educational background of the heads of household in the urban survey areas show that households in the squatter areas had the least educated heads. In these areas, 17.7 per cent of the heads of household had no formal education, 60.0 per cent had some primary education and only 22.3 per cent had secondary or teacher training education. Over half of the 52 female heads of household in these areas had no education. This picture contrasts with that presented for the high or low density areas. Only 11.2 per cent and 2.3 per cent respectively of the heads of households in these areas had no formal education. Those of them who had secondary or higher education constituted 41.2 per cent, and 83.2 per cent of the heads of household in the high and low density areas respectively.

These differences in the educational background of heads of household in the three urban strata in Lusaka reflect differences in occupational status among the inhabitants of these areas. The low density areas are the homes of higher income professional groups and the high density areas are inhabited by the middle income groups composed of the lower professions. The squatter areas are inhabited by manual workers who have had no education or only primary education. The educational characteristics of the heads of household in the urban and rural strata of this survey reflect in general occupational and type of residence characteristics of the inhabitants of these areas.

Table 13a: Distribution of heads of household by age, sex and by size of household, Urban Lusaka

Age Group	Sex	HIGH DENSITY						LOW DENSITY						SQUATTER					
		1-5		6 & over		Total		1-5		6 & over		Total		1-5		6 & over		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
20-29	M	52	35.4	25	5.8	77	13.4	18	40.9	10	4.9	28	11.2	275	47.3	35	6.8	310	28.4
	F	20	51.3	7	23.3	27	39.1	6	66.7	61.7	33.3	7	58.8	14	53.8	2	7.7	16	30.8
	Both	72	38.7	32	7.0	104	16.1	24	45.3	11	5.2	35	13.4	289	47.5	37	6.9	326	28.5
30-39	M	43	29.3	157	36.6	200	34.7	20	45.4	89	43.2	109	43.6	195	33.5	218	42.6	413	37.8
	F	13	33.3	11	36.6	24	34.8	3	33.7	-	-	3	25.0	6	23.1	8	30.8	14	26.9
	Both	56	30.1	168	36.6	224	34.7	23	43.4	89	42.6	112	42.7	201	33.1	226	42.1	427	37.3
40-49	M	33	22.4	152	35.4	185	32.1	4	9.1	80	38.8	84	33.6	72	12.4	183	35.8	255	23.3
	F	6	15.4	8	26.6	14	20.3	-	-	2	66.7	2	66.7	4	15.4	11	42.3	15	28.9
	Both	39	21.0	160	34.9	199	30.8	4	7.5	82	39.2	86	32.8	76	12.5	194	36.1	270	23.6
50-59	M	15	10.2	84	19.6	99	17.2	2	4.6	24	11.7	26	10.4	32	5.5	63	12.3	95	8.7
	F	-	-	4	13.3	4	5.8	-	-	-	-	-	-	2	7.7	4	15.4	6	11.6
	Both	15	8.1	88	19.2	103	16.0	2	3.8	24	11.5	26	9.9	34	5.6	67	12.5	101	8.8
60+	M	4	2.7	11	2.6	15	2.6	-	-	3	1.5	3	1.2	8	1.4	12	2.3	20	1.8
	F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.8	1	1.9
	Both	4	2.1	11	2.4	15	2.3	-	-	3	1.4	3	1.2	8	1.3	13	2.4	21	1.8
Total	M	147	100.0	429	100.0	576	100.0	44	100.0	206	100	250	100.0	582	100.0	511	100.0	1093	100.0
	F	39	100.0	30	100.0	69	100.0	9	100.0	3	100	12	100.0	26	100.0	26	100.0	52	100.0
	Both	186	100.0	459	100.0	645	100.0	53	100.0	209	100	262	100.0	608	100.0	537	100.0	1145	100.0

Table 13b: Distribution of heads of household by age, sex and by size of household, rural Keembe

Age Group	Sex	HOUSEHOLD SIZE					
		1-5 persons		6 or more persons		Total	
		Number	Per cent	Number	Per cent	Number	Per cent
20-29	Male	50	32.0	6	2.2	56	13.2
	Female	6	9.2	-	-	6	6.2
	Both	56	26.0	6	2.0	62	11.9
30-39	Male	26	16.9	55	20.4	81	19.1
	Female	14	21.5	7	23.3	21	21.9
	Both	40	18.3	62	20.6	102	19.6
40-49	Male	26	16.9	75	27.8	101	23.8
	Female	31	47.7	10	33.4	41	42.7
	Both	57	26.6	85	28.2	142	27.3
50-59	Male	25	16.2	85	31.5	110	26.0
	Female	10	15.4	6	20.0	16	16.7
	Both	35	16.0	91	30.2	126	24.2
60 and over	Male	27	17.5	49	18.1	76	17.9
	Female	4	6.2	8	26.0	12	12.5
	Both	31	14.2	57	18.9	88	16.9
Total	Male	154	100.0	270	100.0	424	100.0
	Female	65	100.0	31	100.0	96	100.0
	Both	216	100.0	301	100.0	520	100.0

Table 14: Distribution of head of households by educational level for urban (Lusaka) and rural (Keeembe) areas of Zambia

Level of Education	Head of Household					
	MALE		FEMALE		TOTAL	
	No.	%	No.	%	No.	%
None	63	27.5	9	12.5	72	11.2
Primary	273	90.6	29	9.4	307	47.6
Secondary and Teacher Training	135	57.7	26	12.3	211	32.7
Post secondary	50	90.9	5	0.1	55	8.5
Total	576	89.3	69	10.7	645	100.0
LUSAKA LOW DENSITY						
None	6	100.0	-	-	6	2.3
Primary	37	97.4	1	2.6	38	14.5
Secondary and Teacher Training	131	93.6	0	0.0	140	53.4
Post secondary	76	97.4	2	2.6	78	29.3
Total	250	95.4	12	4.6	262	100.0
LUSAKA SQUATTER AREAS						
None	175	36.2	23	13.0	203	17.7
Primary	666	96.9	21	3.1	687	60.0
Secondary and Teacher Training	252	90.6	2	1.2	255	22.3
Post secondary	-	-	-	-	-	-
Total	1093	95.5	52	4.5	1145	100.0
RURAL (KEEEMBE)						
None	125	64.4	30	35.6	194	37.3
Primary	273	91.3	30	6.7	299	57.5
Secondary and Teacher Training	26	96.3	1	3.7	27	5.2
Post secondary	-	-	-	-	-	-
Total	424	91.5	61	13.5	520	100.0

Appendix I

Appendix I: Observed as well as standardization measures of both height and weight are given in Table I. The standardization takes account of the effect of the variability of the sub-samples of each stratum (urban low density, urban high density etc...) within each age group. It also takes into account the basic relationship between height and weight considering that both are mutually inter-dependent in that height influences weight and vice versa. Thus, to obtain the standardised height for each age group (10-14 55-59) holding sub-sample size constant:

$$h''_i = \frac{\sum h'_i \cdot n_i}{N} \text{-----} (1)$$

where h''_i = standard height for age group to be estimated, $i = 1 \dots 10$
 n_i = sub-sample size in age group, $i = 1 \dots 4$
 h'_i = average height of sub-sample, $i = 1 \dots 4$
 $N = n_i$, $i = 1 \dots 4$

To standardize weight for height for each sample stratum in age group:

$$W''_i = \frac{h''_i}{h'_i} \cdot W'_i \text{-----} (2)$$

where W''_i = standardised weight for age group to be estimated,
 $i = 1 \dots 10$
 W'_i = average observed weight of sub-sample, $i = 1 \dots 4$
 h''_i = value defined in (1)
 h'_i = value defined in (1)

In reverse, to obtain the standardised weight for each age group holding sub-sample size constant:

$$\bar{w}_i = \frac{\sum W'_i \cdot n_i}{N} \text{-----} (3)$$

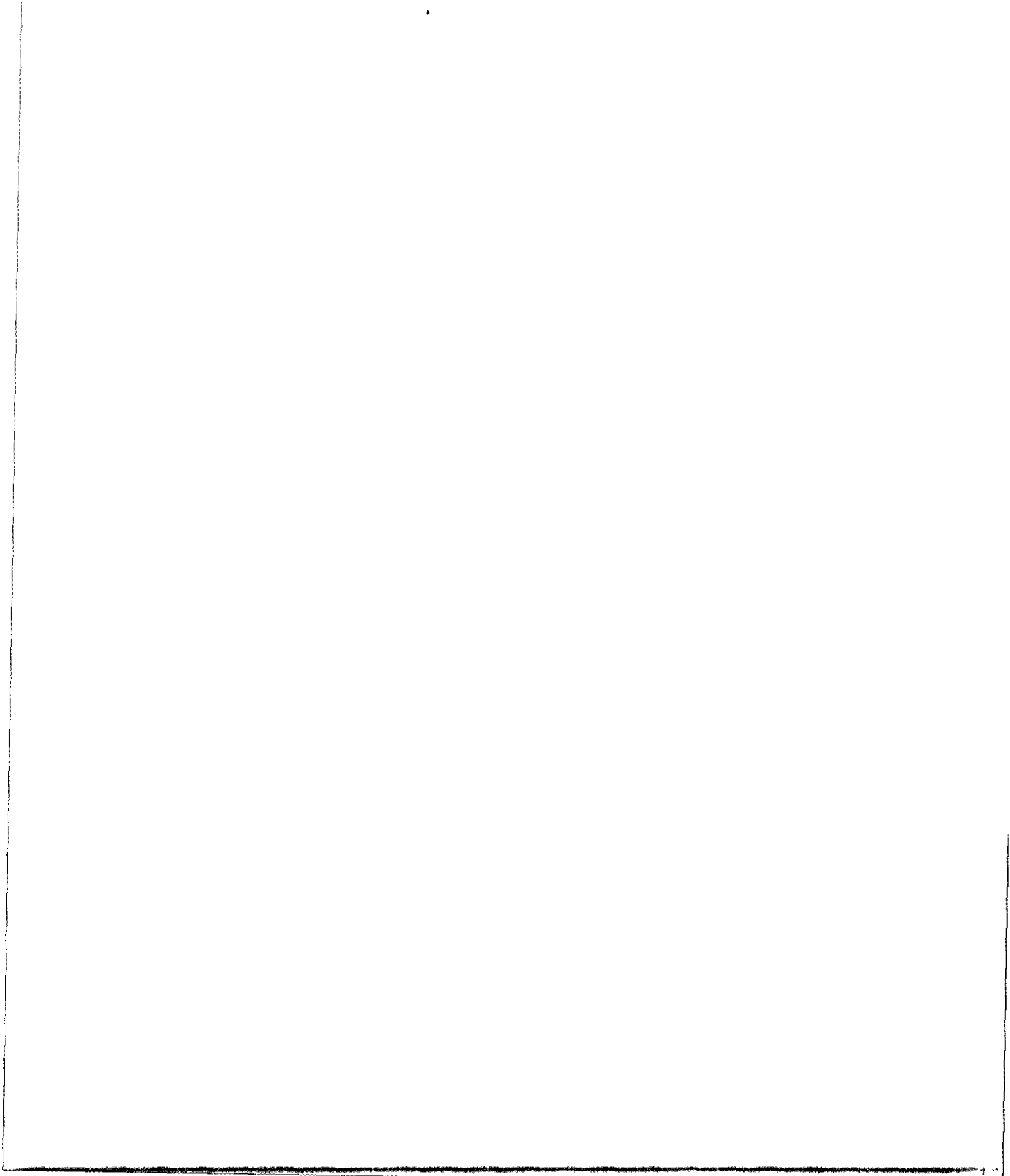
where \bar{w}_i = standard weight for each age group to be estimated, $i = 1 \dots 10$
 N , W'_i and n_i = values as defined in (1) and (2) above

To standardise height for weight for each sample strata in age group:

$$\bar{h}_i = \frac{W''_i}{W'_i} \cdot h'_i \text{-----} (4)$$

where \bar{h}_i = standardised height for weight for each age group to be estimated, $i = 1 \dots 10$

W''_i , W'_i and h'_i = values as defined in (3) and (4) above.



Conclusion

The analyses undertaken in this paper show that about half of the 16500 persons covered in this survey in Lusaka and Keembe lived in households of seven or more members. A quarter of the 2572 Lusaka and Keembe households covered in the survey had ten or more members. The average household size was 6.4 for Lusaka and 6.6 for rural Keembe. In Lusaka average household size was highest (8.1) in the low density areas and lowest (5.6) in the squatter areas. Housing conditions and income levels are higher in the former areas which tend to have more relatives in households than is the case in the squatter areas with poor living conditions, absence of some public utilities and services and lower incomes. Thus while relatives constituted 19.0 per cent of the population found in households in the low density areas they accounted for only 10.1 per cent of the population in the squatter areas.

This situation results in relatively larger households in low density than squatter or high density areas of Lusaka. Consequently, while one fifth of the persons in low density areas lived in households of 12 or more members, less than five per cent of the population of squatter areas lived in such households.

Although, as it was to be expected, sons and daughters constituted over half of all members of households in Lusaka, (55.1 per cent), the lower rate for Keembe (50.2 per cent), suggests that a significant percentage of these children leave their own parents to reside as "relatives" with members of the extended family elsewhere. This explains the reason why the percentage of the urban population classified in their respective households as relatives (14.0 per cent) was lower than those (20.3 per cent) recorded for rural Keembe.

This study demonstrates that most households in Zambian society are headed by men. Although headship rates increase rapidly for men from 20 years on wards, the evidence suggests that urban males establish independent households relatively earlier in life than rural men. Employment, housing and the nucleated pattern of living in urban areas facilitate the creation of new households in urban areas than is the case in rural areas where headship is very much associated with advancing age.

It is also evident in this analysis that women generally become household heads only when their marriages are terminated by separation, divorce or by death of husband. Even in urban areas, where an increasing number of women is employed in the modern economic sector and is therefore, economically relatively independent, very few women are heads of households except in most cases as a result of termination of marriage, or in a very few cases, during a short prelude prior to marriage.

The evidence from this study suggests that although it is generally stated living standards are likely to improve if couples limit the number of children they have, these improvements are not likely to be significant in a society where the extended family system permits persons to seek residence in the homes of relatively richer members of their extended family. Such behaviour restores within each household the number of members reduced through contraception. Where unemployment is high, schooling facilities are concentrated in the city and where the traditional bonds of the extended family system are unbroken, the size of the nuclear family does not always equal the size of the household.

Consequently, while employment opportunities for school leavers are limited and the rural economy stagnates, the exodus of people to towns would increase the dependence of many people on relatives. This trend sustains the predominance of large households especially in urban areas where housing conditions and the hope for employment are considered better than elsewhere.

MARRIAGE PATTERNS AND CHANGE IN ZAMBIA

Introduction

The World Population Plan of Action recognized the family as the basic unit of society and emphasized its importance in two resolutions which among other things recommended that the family be protected by appropriate legislation and that marriage be entered into only with the free and full consent of intending spouses. Marital status has long been recognized as a most important factor in population dynamics as it affects fertility tremendously and mortality and migration to a lesser extent. Marital status is a demographic characteristic involving biological characteristics related to social, economic, legal and in many cases religious aspects. Its effects on other social and economic characteristics such as school attendance and labour force participation are very important in late adolescence and young adult age groups.

The timing and frequency of marriage are, therefore, important aspects in mechanisms for regulating reproduction. The interaction of gross expectation of marital life and the gross expectation of second life are very important for estimating the total effect of marriage on fertility. This is particularly the case because in almost all known societies, the marital union is seen as the social institution within which reproduction is supposed to take place. Although empirical evidence from societies of differing economic, social, racial and geographical backgrounds shows that child bearing is not in practice a monopoly of the married couple and that a significant number of children are born out of wedlock ^{1/}, the marital union is still considered as the rightful place for procreation in nearly all human societies.

Consequently, investigations on fertility differentials always view studies in marital patterns and differences in age at first and subsequent marriages as a prerequisite for in-depth analysis. Studies on age at first marriage and the influence of education on age at first marriage provide useful information on the determinants of levels of fertility. Similarly the frequency and timing of changes in marital state influence women's total length of exposure to pregnancy and childbearing.

A major problem related to studies on marriage is the variation in practices and concepts of what constitutes a marital union and when exactly it starts. Many types of marriage practices coexist in African societies. There is the church wedding among christians, the legal wedding involving legal procedures and the acquisition of marriage certificates and the traditional marriage which is most common among both rural and urban populations in African countries. The latter accommodates both monogamous and polygamous unions.

^{1/} Central Bureau of Statistics, Nairobi, Kenya Fertility Survey 1977-1978, First Report Vol. 1 page 93. This study showed that 23 per cent of all Kenya women reported premarital birth.

The socio-biological foundations of marriage stem from the desire by every society to ensure that an adequate number of children are born to parents who are in stable unions that are most likely to socialize children in a manner considered necessary for the survival of that society as a viable entity. The age at which women marry, the duration of such marriages and the number of times women marry is therefore of prime importance in the attempt to understand the determinants of fertility especially in societies where the onset of marriage signals the start of childbearing.

In the first round of this survey, information was collected on the marriage history of all women covered in the study. This information related to the number of times each woman had been married, age at first and subsequent marriages and age at which each marriage ended. For each marriage the reason for termination and the type of marriage were recorded. This paper analyses these data in an attempt to throw some light on marriage patterns in urban and rural communities in Zambia as a prelude to undertaking fertility determinants in Zambia.

Incidence and frequency of marriage

Among the 4202 women aged 12-50 years interviewed during the first round of this survey, 2720 (64.7 per cent) declared that they had been married at least once before. A breakdown of these women by the number of times married is presented in Table 1.

Table 1. Distribution of ever married women aged 12-50 years by number of times married for urban (Lusaka) and rural (Keele) areas in Zambia

Number of times married	Lusaka		Keele		Total	
	Number	Per cent	Number	Per cent	Number	Per cent
1	1007	4.1	397	62.5	2205	10.7
2	319	14.5	150	27.3	477	17.5
3	15	0.9	20	3.5	35	1.4
4	2	0.1	3	0.5	5	0.2
5	2	0.1	1	0.2	3	0.1
Total	2150	100.0	570	100.0	2720	100.0

Table 2. Distribution of women by marital status and age for urban (Lusaka) and rural (Keembe) areas in Zambia

	LUSAKA URBAN						KEEMBE RURAL							
(in years)	Never Married	Married	Sepa-rated	Divor-ced	Wido-wed	Total	Never Married	Mar-ried	Sepa-rated	Divor-ced	Widowed	Total		
12-14	509	6	-	-	-	515	149	4	--	-	1	154		
15-19	538	210	2	6	1	757	119	41	1	2	2	163		
20-24	153	479	9	25	1	667	22	66	2	13	-	103		
25-29	26	430	2	21	4	483	6	72	3	9	1	91		
30-34	7	364	3	17	9	400	-	81	2	16	3	102		
35-39	3	265	3	15	9	295	1	79	-	7	4	91		
40-44	1	159	-	5	7	172	1	61	2	10	7	81		
45-49	1	85	4	4	13	107	1	73	-	15	13	102		
Total	1238	1998	23	93	44	3396	299	477	10	72	29	887		
Percentages														
													Proportion Ever-married	
													Urban	Rural
12-14	98.8	1.2	-	-	-	100.0	96.8	2.6	-	-	0.6	100.00	1.2	2.3
15-19	71.1	27.7	0.3	0.8	0.1	100.0	73.0	25.2	0.6	1.2	-	100.00	28.9	27.0
20-24	22.9	71.8	1.3	3.8	0.2	100.0	21.4	64.1	1.9	12.6	-	100.0	77.1	78.6
25-29	5.4	89.0	0.4	4.4	0.8	100.0	6.6	79.1	3.3	9.9	1.1	100.0	94.6	93.4
30-34	1.8	91.0	0.7	4.3	2.2	100.0	-	79.4	2.0	15.7	2.9	100.0	98.3	100.0
35-39	1.0	89.8	1.0	5.1	3.1	100.0	1.1	86.8	-	7.7	4.4	100.0	99.0	98.9
40-49	0.6	92.4	-	2.9	4.1	100.0	1.2	75.3	2.5	12.4	8.6	100.00	99.4	98.8
45-49	0.9	79.4	3.7	3.7	12.2	100.0	1.0	71.6	-	14.7	12.7	100.0	99.1	99.0
Total	36.5	58.8	0.7	2.7	1.3	100.0	33.7	53.8	1.1	8.1	3.3	100.0	63.6	66.3

These data show that 20.3 per cent of all ever-married women aged 12-50 years who were studied in this survey had been married only once.^{1/} A significant proportion of these women (19.2 per cent) had been married twice and 1.7 per cent of them had been married more than twice. It is apparent from these data that marital instability was higher in rural than urban areas. Thus while only 15.2 per cent of all ever-married women in Lusaka had been married more than once, more than twice that percentage (31.5 per cent) of Keembe women had been married two or more times. The lower proportion of urban women married more than once may be due to the frequent movement of divorced or separated women from city to rural areas. Although the movement is both ways, data from this survey show that 5.4 per cent of in-migrants to Keembe and 3.4 per cent of those migrating to Lusaka were divorced or separated women.^{2/}

A distribution of women 12-49 years of age by marital status is shown in Table 2. These data show that the marriage of 160 (7.4 per cent) of the urban ever-married women had been terminated by separation, divorce or death. This proportion was much lower than that for rural Keembe. The data for Keembe show that 111 (15.9 per cent) of all ever-married women were separated, divorced or widowed. More than a tenth of all ever-married women in Keembe were divorced.

An examination of the proportions married in the urban and rural areas show that women enter into marital unions very early in life and the majority of all women remain married throughout their reproductive life. Thus nearly four fifths of all Lusaka (77.1 per cent) and Keembe (73.6 per cent) women had been married before twenty five years of age. These data present a similar picture of early marriage as that observed for Kenya^{3/} and indicate that the proportion of currently married women was higher in Lusaka than in Keembe except for females married before fifteen years of age. This evidence is indicative of higher marital stability in Lusaka than Keembe. Thus while separated and divorced women in Lusaka comprised 3.4 per cent of all women in the age groups under study, the corresponding proportion for Keembe was 9.2 per cent.

- ^{1/} The percentage of Lusaka women in first unions was similar to percentages obtained for Kenya (23.8 per cent) and Lesotho (14.0 per cent). See ECA, Marital Composition and Fertility, Kenya and Lesotho. The lower percentage for Keembe was probably influenced, among other factors, by sampling errors or by sampling errors.
- ^{2/} See Seminar paper on Aspects of Migration on the Development of Zambia Table 1.2/1954. Table 1.2.
- ^{3/} Central Bureau of Statistics, Nairobi, Kenya Fertility Survey 1977-1978 First Report Vol. 1, p. 76. See also ECA Population Division Marital Composition and Fertility, Kenya and Lesotho paper presented at the Fifth Meeting of the United Nations Working Group on Comparative Analysis of World Fertility Data, Geneva, 26-29 January 1982, p.4.

When these women are distributed by religion and by the number of times married, it is obvious that many women marry more than once irrespective of the religious beliefs they profess. These data which are presented in Table 3 show that more rural than urban women of protestant faith marry more than once. It is obvious from these data that catholic or protestant women are equally as likely to marry more than once as women who profess traditional religions or no religion at all.

The data on the number of times women had married by the time of the survey were classified by educational level of women. These data which are presented in Table 4 show that in general more illiterate women marry two or more times than their educated counterparts and that higher educational levels go with stable first marital unions. The proportion of urban women married once only was higher for nearly all levels of education. These data also show that third and fourth marriages were more frequent among rural than urban women. Thus while only 1.1 per cent of all ever-married women in Lusaka had married three or more times, 4.2 per cent of all Keembe ever-married women had been married three or more times.

Table 3. Distribution of women by religion and by number of times married in urban (Lusaka) and rural (Keembe) areas in Zambia

	Number of times married								Total	
	One		Two		Three		Four		Number	%
	Number	%	Number	%	Number	%	Number	%		
URBAN (LUSAKA)										
Catholic	766	33.3	145	15.1	9	1.0	-	-	920	42.0
Protestant	930	35.6	147	13.5	6	0.7	-	-	1083 ^{a/}	50.6
Moslem	5	62.5	3	37.5	-	-	-	-	8	0.4
Traditional	13	76.5	2	11.8	1	5.9	1	5.9	17	0.8
No religion	94	79.7	22	18.6	1	0.8	1	0.8	118	5.5
Total	1808	84.1	319	14.8	2	0.1	2	0.1	2150	100.0
RURAL (KEEMBE)										
Catholic	42	34.0	7	14.0	1	2.0	-	-	50	8.7
Protestant	296	69.0	116	26.9	14	3.2	3	0.7	430 ^{b/}	74.6
Moslem	-	-	1	100.0	-	-	-	-	1	0.2
No religion [*]	57	59.4	34	35.4	5	5.2	-	-	96	16.6
Total	397	68.6	158	27.3	20	3.5	3	0.5	579	100.0

a/ 2 protestant women had been married a fifth time.

b/ 1 protestant woman had been married a fifth time.

* no religion may include adherents of traditional religion.

Table 4. Distribution of women by educational level and number of times married for urban (Lusaka) and rural (Keembe) areas in Zambia

Educational Level of Women	Number of times married											
	One		Two		Three		Four		Five		Total	
	No. of Women	%	No. of Women	%	No. of Women	%	No. of Women	%	No. of Women	%	No. of Women	%
URBAN (LUSAKA)												
None	412	75.2	123	22.4	12	2.2	1	0.2	-	-	548	25.5
Primary Grade 1-4	424	79.5	102	19.1	7	1.2	-	-	-	-	533	24.6
Primary Grade 5+2	604	83.6	74	10.9	-	-	-	-	2	0.3	680	31.7
Secondary form 1-2	164	94.0	0	5.2	-	-	-	-	-	-	173	8.0
Secondary form 3 + Trade school & Teacher training	152	93.8	9	5.6	-	-	1	0.6	-	-	162	7.5
Post secondary and University	52	96.3	2	3.7	-	-	-	-	-	-	54	2.5
Total	1008	84.1	319	14.6	19	0.9	2	0.1	2	0.1	2150	100.0
RURAL (KEEMBE)												
None	191	62.4	97	31.7	15	4.9	2	0.7	1	0.3	306	52.8
Primary Grade 1-4	110	71.0	42	27.1	2	1.3	1	0.6	-	-	155	26.0
Primary 5 +	60	81.5	13	16.7	2	1.9	-	-	-	-	100	12.7
Secondary form 1-2	4	66.7	1	16.7	1	16.7	-	-	-	-	6	1.0
Secondary form 3 + and Trade school	4	100.0	-	-	-	-	-	-	-	-	4	0.7
Total	397	68.6	158	27.3	20	3.5	3	0.5	1	0.2	579	100.0

A classification of women by mother tongue (ethnic group) and number of times married is presented in Table 5. These data show that although the break up of first marriages is common to all ethnic groups, the first marriage of Lenje and Bemba women tended to break up more regularly as indicated by the significant proportions of women married more than once. The survival of the first marriage among Tonga and Shona women was much higher than among the other ethnic groups. Although some of these differences may be attributed to sampling errors, it is apparent that a significant proportion of Bemba and Lenje women marry more than once. However, the percentage of women of ethnic groups classified as "others", who marry more than once (17.9 per cent) show that the trend towards the break up of first marriages is observed all ethnic groups.

Table 5. Distribution of women by mother tongue (ethnic group), and by number of times married, urban (Lusaka) and rural (Keembe) areas in Zambia

Mother tongue (ethnic group)	Number of times married									
	One		Two		Three		Four		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
URBAN (LUSAKA)										
Nyanja	433	87.5	56	11.3	40.8	0.8	2	0.4	495	23.0
Bemba	283	82.7	55	16.1	3	0.9	-	-	342	15.9
Lenje	99	80.5	23	18.7	1	0.8	-	-	123	5.7
Tonga	131	88.5	17	11.5	-	-	-	-	148	6.9
Lozi	76	86.4	12	13.6	-	-	-	-	88	4.1
Shona	41	89.1	4	8.7	-	-	-	-	46	2.1
Others	745	82.0	152	16.7	11	1.2	-	-	908	42.2
Total	1808	84.1	319	14.8	19	0.9	2	0.1	2150	100.0
RURAL (KEEMBE)										
Nyanja	13	68.4	6	31.6	-	-	-	-	19	3.3
Bemba	8	61.5	3	23.1	2	15.4	-	-	13	2.2
Lenje	266	65.5	122	30.1	15	3.7	3	0.7	406	70.1
Tonga	52	82.5	10	15.9	1	1.6	-	-	63	10.9
Lozi	3	33.3	5	55.6	1	11.1	-	-	9	1.6
Shona	23	88.5	3	11.5	-	-	-	-	26	4.5
Others	32	74.4	9	20.9	1	2.3	-	-	43	7.4
Total	397	68.6	158	27.3	20	3.5	3	0.5	579	100.0

Table 6. Distribution of women by current age and by number of times married, Urban (Lusaka) and Rural (Keembe), Zambia

Current Age of Women	Number of times married											
	One		Two		Three		Four		Five		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
URBAN (LUSAKA)												
12-14	4	30.0	1	20.0	-	-	-	-	-	-	5	0.2
15-19	202	93.1	15	6.9	-	-	-	-	-	-	217	10.1
20-24	466	91.4	44	8.6	-	-	-	-	-	-	512	23.6
25-29	390	88.3	49	10.9	-	-	-	-	1	0.2	440	20.3
30-34	311	79.7	72	18.5	7	1.8	-	-	-	-	390	18.1
35-39	224	77.0	60	20.9	7	2.4	-	-	-	-	291	13.4
40-44	120	70.2	45	26.3	4	2.3	1	0.6	1	0.6	171	8.0
45-50	41	68.1	33	27.7	4	3.4	1	0.8	-	-	119	5.5
Total	1009	84.1	319	14.8	18	0.9	2	0.1	2	0.1	2150	100.0
RURAL (KUSILE)												
12-14	4	30.0	1	20.0	-	-	-	-	-	-	5	0.9
15-19	42	97.7	1	2.3	-	-	-	-	-	-	43	7.4
20-24	63	82.9	12	15.8	1	1.3	-	-	-	-	76	13.1
25-29	62	73.8	19	22.6	3	3.6	-	-	-	-	84	14.5
30-34	61	61.6	34	34.3	3	3.0	1	1.0	-	-	99	17.1
35-39	56	62.9	29	31.5	5	5.6	-	-	-	-	90	15.4
40-44	54	69.2	21	26.9	2	2.6	-	-	1	1.3	78	13.5
45-50	55	52.4	42	40.0	6	5.7	2	1.9	-	-	105	18.1
Total	397	63.6	150	27.3	20	3.5	3	0.5	1	0.2	570	100.0

The evidence from Table 5 shows that few women in Lusaka and Keembe marry three or more times. As already noted, only 1.1 percent of all Lusaka women and 4.1 per cent of all Keembe women included in this survey had been married three or more times. This evidence further confirms the higher incidence of marital dissolution in Keembe than in Lusaka.

Table 6 shows the distribution of women by current age and number of times married. These data suggest that the frequency of the dissolution of first and subsequent marital unions increases with age. However, a significant proportion of the first marital unions of women below 30 years of age was terminated. Thus 10.9 per cent of all Lusaka ever-married women aged 25-29 years had married a second time. The percentage for rural Keembe was much higher (22.6 per cent). The proportion of women married more than once for each age group further supports the view that women living in Keembe marry more times in their lives than those in Lusaka.

Age at first marriage

A principal demographic factor affecting the birth rate in populations of natural fertility is the age at which women enter into marital unions. While fecundity provides the biological potential for childbearing, marriage patterns and a variety of other factors interact with it to determine women's actual reproductive performance. The age pattern of marriage is therefore of great importance in the study of determinants of fertility although it is observed that in many societies marriage may take place sometimes during the adolescent subfecund years.

The timing of first marriage is therefore a very useful index of the beginning of exposure to the risk of childbearing. This index may be measured in terms of the average number of years women who marry before attaining age 50 years live in a single state. These indexes referred to as the singulate mean age at marriage and the singulate median age at marriage have been calculated for Lusaka and Keembe women and are presented in Table 7.

Table 7. Singulate mean and median age at marriage for urban (Lusaka) and rural (Keembe) women in Zambia

Locality	Singulate mean age at marriage	Singulate median age at marriage
Urban (Lusaka)		
High Density areas	21.7	20.4
Low Density areas	23.3	21.5
Squatter areas	16.1	16.5
Urban Total	19.9	19.2
Rural (Keembe)	19.9	19.5
Kenya ^{1/}	19.9	19.2
Lesotho ^{1/}	19.6	18.5

1/ ECA Population Division Marital Composition and Fertility Kenya and Lesotho ECA/PL/WP/1981/7 paper presented at UN Working Group on Comparative Analysis of World Fertility Survey Data, Geneva, 22-29 January 1982, p.8.

Table 6. Distribution of women by age at first marriage in urban and rural areas in Zambia

Age at first marriage	Urban (Lusaka)			Rural (Keembe)		
	Number	Percent	Cumulative Percent	Number	Percent	Cumulative Percent
12	46	2.1	2.1	1	3.1	3.1
13	74	3.4	5.6	33	5.7	8.8
14	176	8.2	13.8	36	6.2	15.0
15	199	18.6	32.3	100	17.3	32.3
16	302	14.0	46.4	69	15.4	47.7
17	335	15.6	62.0	180	31.1	78.8
18	268	12.5	74.4	52	9.0	87.7
19	204	9.5	83.9	25	4.3	92.1
20	135	6.3	90.2	20	3.5	95.5
21	63	2.9	93.1	5	0.9	96.4
22	48	2.3	95.4	10	1.7	98.1
23	20	1.3	96.7	2	0.3	98.4
24	23	1.1	97.8	5	0.9	99.3
25 plus	46	2.1	99.9	4	0.7	100.0
N.S	1	0.1	100.0	-	-	-
Total	2150	100.0		572	100.0	

These estimates appear to be rather high especially for Keembe because grouped data were used to reduce age errors in them. Single year distribution of women by age at marriage would tend to be biased towards the younger ages and grouping tends to mask the impact of younger ages at marriage on the average calculated.

Notwithstanding these limitations, significant differences emerge in the singulate mean ages at marriage for the three urban strata. The mean for the low density was 23.3 years compared with 21.7 years for the high density and 16.8 years for the squatter areas. This pattern follows the socio-economic stratification of the three areas. The lack of a clear rural/urban differential here is due to differential age misreporting between the two areas and sampling errors.

Greater insight into the timing of first marriage among Zambian women can be gained by distributing married women by single year ages at first marriage. These data presented for Lusaka and Keembe in Table 8 show that in the urban and rural areas studied, over ninety per cent of all women married before they were twenty years old. In fact by the age of 17 years 62.0 per cent Lusaka and 75.8 per cent Keembe women were married already. These data show a distinct earlier rural than urban age at first marriage. The implication of this evidence is that most Zambian women are exposed to the risk of childbearing at an early age and as the fertility data from this survey show they go on to bear more children before menopause.

An analysis of age at first marriage by the number of times women marry indicates that the older the age at first marriage the more stable would be the first marriage. These data which are presented on Table 9 for Lusaka and Keembe women show that 24.3 per cent of all women who married before 15 years had married a second time. This percentage was much higher than for women whose age at first marriage was 17 years or over. Although the percentage of rural Keembe women who married more than once was higher than that observed for women who contracted their first marriage before 20 years of age, the observation that the proportion of women who married more than once decreased with increasing age, was still valid.

Table 10 presents age at first marriage by level of education. The data show that the lower the women's level of education, the younger her age at first marital union. This relationship between the level of education and age at first marriage was more pronounced in Lusaka than in rural Keembe. In Lusaka, 74.3 per cent of all ever-married women with no formal education married before eighteen. This contrasts with only 27.8 per cent for those who had at least secondary form III education. Inversely, only 6.4 per cent of all illiterate women married after 21 years of age, the corresponding percentage was 30.1 per cent for secondary form III, teacher training and trade school graduates and 42.6 per cent for women who had post-secondary and university education before marriage.

The evidence on age at first marriage suggests that early and universal marriage is still the norm in urban and rural communities in Zambia.

Most women marry early although women in the higher socio-economic groups tend to marry later than those in the lower income groups in the squatter areas. This differential is certainly accountable in greater part by differences in the level of education.

Table 9. Distribution of women by number times married by age at first marriage, Urban (Lusaka) and Rural (Keembe) areas, Zambia

Number of times married	Age at first marriage in years															
	Under 15		15-16		17-18		19-20		21-22		23-24		25 and over		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
URBAN (LUSAKA)																
1	215	72.6	563	80.3	523	86.0	308	90.3	104	92.9	50	96.2	44	95.7	1507	74.1
2	72	24.3	131	18.7	75	12.4	29	8.6	9	7.1	2	3.8	2	4.3	319	14.6
3	9	3.1	7	1.0	2	0.3	1	0.3	-	-	-	-	-	-	19	0.9
4	-	-	-	-	2	0.3	-	-	-	-	-	-	-	-	2	0.1
5	-	-	-	-	1	0.2	1	0.3	-	-	-	-	-	-	2	0.1
Total	296	100.0	701	100.0	603	100.0	339	100.0	112	100.0	52	100.0	48	100.0	2149	100.0
RURAL (KEEMBE)																
1	50	57.5	135	71.4	140	64.2	40	55.9	13	56.7	7	100.0	3	75.0	397	63.6
2	34	39.1	46	24.3	72	31.0	5	11.1	-	-	-	-	1	25.0	156	27.3
3	3	3.4	7	3.7	9	3.5	-	-	2	13.3	-	-	-	-	20	3.4
4	-	-	-	-	3	1.3	-	-	-	-	-	-	-	-	3	0.5
5	-	-	1	0.5	-	-	-	-	-	-	-	-	-	-	1	0.2
Total	87	100.0	190	99.9	232	100.0	45	100.0	15	100.0	7	100.0	4	100.0	579	100.0

Table 10. Distribution of women by level of education and age at first marriage for Urban (Lusaka)
and Rural (Zembe) areas, Zambia

Level of Education	Age at first marriage in years											
	Under 15		15-17		18-20		21-24		25 and over		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
URBAN (LUSAKA)												
None	107	19.5	300	54.3	106	19.3	24	4.4	11	2.0	548	25.5
Grade 1-4	38	16.5	296	55.5	117	22.0	16	4.2	6	1.1	533	24.3
Grade 5	62	12.0	350	43.5	230	32.7	31	4.5	3	1.2	630	31.6
Sec. Form 1	12	7.5	65	37.6	63	36.4	27	15.6	5	2.9	173	8.0
Sec. Form III, Teacher Training & Trade Schools	4	2.5	41	25.3	67	41.2	30	24.1	11	6.2	162	7.3
Post Secondary and university	2	3.7	5	9.3	24	44.4	17	31.5	6	11.1	54	2.5
Total	296	13.8	1007	46.2	607	27.2	164	7.6	46	2.1	2150	100.0
RURAL (ZAMBIA)												
None	45	14.7	206	68.3	37	12.1	12	3.9	2	1.0	306	52.0
Grade 1-4	29	13.7	91	50.7	20	13.1	7	4.5	-	-	155	26.0
Grade 5 +	12	11.1	64	59.3	29	26.0	2	1.8	1	0.9	108	13.7
Secondary Form I	-	-	3	50.0	2	33.3	1	16.7	-	-	6	1.0
Sec. Form III and Trade Schools	1	25.0	2	50.0	1	25.0	-	-	-	-	4	0.7

Evidence suggesting a positive relation between the level of education and age at first marriage presented in Table 10 indicates that women who had no formal education married earlier than those who had been to school. About a fifth of all Lusaka women who had no formal education married before they were fifteen years old. In fact 93.6 per cent of Lusaka women and 95.1 per cent Keembe women in this group were married before twenty. This pattern of very early marriage among illiterate women contrasts with that observed for women who have had some formal education. Although early marriage was common among women with primary education only, almost half the women who had post-secondary education married after twenty years of age.

The data on Table 10 should be interpreted with some caution because some women may have improved their educational level after marriage. This will have the effect of reducing the strength of the positive correlation between the two phenomena. Furthermore, the data on Keembe were difficult to interpret because there were very few women in this area who had secondary or higher education. Many studies have identified maternal education as a crucial factor influencing infant mortality and fertility. The analysis of fertility and mortality data from this survey corroborate this evidence. The role of education in this regard is two fold. First, as can be observed in Table 10 education especially secondary education delays age at first marriage and therefore reduces women's reproductive life-span. Second, by reducing marriages below twenty years of age, education directly reduces the number of women who bear children below twenty and therefore reduces the incidence of higher maternal mortality and morbidity associated with early pregnancy.

Caldwell has also argued that the greatest impact of education in transitional societies is through the restructuring of family relationships ^{1/}. A crucial aspect of this restructuring involves delaying women's age at first marriage and creating new perceptions of life and goal aspirations for mothers. Thus the later ages at first marriage for women with post secondary education shown in Table 10 are proxy indices for a wide range of changing characteristics which include employment and income levels, housing standards, feeding patterns and the degree of usage of medical and educational services. These characteristics interact to produce differences in infant and child mortality and morbidity identified in the analysis of mortality data from this survey.

Dissolution of first marriage

An analysis of marital status of women aged 12-50 years in Lusaka and Keembe (Table 1) indicated that 60.3 per cent of ever-married women included in this survey were still in their first union. This evidence showed a higher stability of urban (67.1 per cent) than rural (60.6 per cent) marriages. In an effort to understand the reasons why one out of every five urban and a third of rural marriages studied in this survey were dissolved, Table 11 shows women whose first marriage ended by current age and reason why it ended.

^{1/} Caldwell J.C., 'Mass education as the major determinant of the timing of the onset of sustained fertility decline' in Population Dynamics: Fertility and Mortality in Africa, Population Division, UNECA, Addis Ababa, 1979, p. 311.

Table 11. Distribution of women whose first marriage ended by current age and by reason why first marriage ended for Urban (Lusaka) and Rural (Keelebe) areas in Zambia

Current Age	Reason why first marriage ended											
	Death		Divorce		Separation		Desertion		Other		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
URBAN (LUSAKA)												
15-19	-	-	14	55.4	-	-	-	-	-	-	-	-
15-19	-	-	14	12.4	-	-	-	-	3	17.6	17	4.0
20-24	4	6.0	53	79.1	2	3.0	1	1.5	7	10.4	67	15.7
25-29	7	9.7	55	76.4	1	1.4	4	5.6	5	6.9	72	16.9
30-34	17	13.1	61	72.3	3	3.2	-	-	6	6.4	94	22.0
35-39	15	20.0	49	60.1	1	1.4	1	1.4	6	7.3	72	16.9
40-44	14	25.9	33	61.1	1	1.9	2	3.7	4	7.4	54	12.6
45-50	23	45.1	27	52.9	-	-	-	-	1	2.0	51	11.0
Total	90	15.7	299	70.0	3	1.9	8	1.9	32	7.5	427	100.0
RURAL (KLEEM)												
15-19	3	50.0	3	50.0	-	-	-	-	-	-	6	2.5
20-24	1	4.5	21	95.6	-	-	-	-	-	-	22	9.3
25-29	4	14.3	22	31.5	1	3.7	-	-	-	-	27	11.4
30-34	-	10.6	31	75.1	1	2.3	1	4.7	1	2.3	43	18.1
35-39	9	21.4	53	71.6	-	-	-	-	-	-	42	17.7
40-44	10	31.3	19	59.4	2	6.3	-	-	1	3.1	32	13.5
45-50	10	27.7	44	67.7	2	3.1	-	-	1	1.5	65	27.4
Total	53	22.4	173	70.0	6	2.5	2	0.2	3	1.3	237	100.0

Table 12. Distribution of women by current age and by age when first marriage ended, Urban (Lusaka) and Rural (Keembe) areas, Zambia

Current age of women	Age when first marriage ended																Total	
	Under 15		15-19		20-24		25-29		30-34		35-39		40-44		45-50			
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
LUSAKA																		
12-14	2	-	-	-	1	100.0	-	-	-	-	-	-	-	-	-	-	1	0.2
15-19	2	10.0	14	7.0	2	10.0	-	-	1	5.0	1	5.0	-	-	-	-	20	4.6
20-24	-	-	33	49.3	34	50.7	-	-	-	-	-	-	-	-	-	-	67	15.3
25-29	-	-	23	30.7	37	48.3	15	20.0	-	-	-	-	-	-	-	-	75	17.1
30-34	4	4.0	21	21.2	31	35.4	30	30.3	6	6.1	-	-	-	-	-	-	99	22.6
35-39	1	1.4	13	17.8	25	34.2	19	26.0	11	15.1	4	5.5	-	-	-	-	73	16.7
40-44	-	-	10	18.9	14	25.5	8	15.1	14	25.4	5	9.4	2	3.0	-	-	53	12.1
45-50	-	-	6	12.0	5	10.0	12	24.0	3	15.0	-	10.0	3	6.0	5	10.0	50	11.4
Total	7	1.6	120	27.4	159	36.3	84	19.2	40	9.1	17	4.1	5	1.1	5	1.1	430	100.0
KEEMBE																		
12-14	-	-	3	100.0	-	-	-	-	-	-	-	-	-	-	-	-	1	0.4
15-19	-	-	3	100.0	-	-	-	-	-	-	-	-	-	-	-	-	3	1.2
20-24	2	0.3	10	41.7	12	50.0	-	-	-	-	-	-	-	-	-	-	24	9.7
25-29	-	-	6	15.1	17	55.1	7	21.9	1	3.1	1	3.1	-	-	-	-	32	13.0
30-34	-	-	13	27.6	17	35.2	10	21.3	3	12.3	1	2.1	-	-	-	-	47	19.0
35-39	1	2.3	5	16.0	13	50.2	15	34.2	3	11.5	-	-	-	-	-	-	43	17.4
40-44	-	-	4	11.3	5	23.5	6	23.5	2	23.5	5	14.7	2	5.9	-	-	34	13.0
45-50	1	1.6	7	11.1	22	33.9	13	20.0	5	7.0	4	6.4	7	11.1	4	6.4	63	25.5
Total	4	1.6	49	19.5	99	36.6	54	21.9	27	10.9	11	4.4	9	3.6	4	1.6	247	100.0

Table 13. Distribution of women by age at first marriage and age when first marriage ended
Urban (Lusaka) and Rural (Keembe) areas, Zambia

Age at Marriage	Under 15		15-19		20-24		25-29		-	30-34		35-39		40-45		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	
LUSAKA																	
Under 15	7	7.6	36	39.1	15	20.6	19	20.6	6	6.5	3	3.3	2	2.2	92	21.0	
15	-	-	41	36.7	23	35.8	12	12.3	7	6.6	3	2.9	4	3.9	106	24.2	
16	-	-	23	35.4	23	43.1	10	15.4	1	1.5	2	3.1	1	1.5	65	14.5	
17	-	-	12	19.0	22	34.9	13	20.6	6	9.5	4	6.3	1	1.6	62	14.4	
18	-	-	6	14.3	13	42.9	7	16.7	6	14.3	4	9.5	1	2.4	42	9.6	
19	-	-	2	7.7	16	61.5	3	11.5	3	11.5	1	3.9	1	3.9	26	5.9	
20	-	-	-	-	11	55.0	6	30.0	2	10.0	1	5.0	-	-	20	4.6	
21	-	-	-	-	4	40.0	3	30.0	3	30.0	-	-	-	-	10	2.3	
22 +	-	-	-	-	-	21.4	5	35.7	6	42.9	-	-	-	-	14	3.2	
Total	7	1.6	120	27.4	159	36.3	64	19.2	40	9.1	16	4.1	10	2.3	436	100.0	
KEEMEE																	
Under 15	4	6.7	17	36.9	13	34.5	4	10.7	4	10.7	1	2.2	-	-	46	16.6	
15	-	-	9	23.7	11	28.9	5	13.2	7	18.4	2	5.3	4	10.5	38	15.4	
16	-	-	7	18.9	16	43.2	9	24.3	2	5.4	2	5.4	1	2.7	37	15.0	
17	-	-	14	16.5	20	35.3	23	27.1	9	10.6	3	3.5	6	7.1	65	24.4	
18	-	-	2	9.1	10	45.5	5	22.7	4	18.2	1	4.5	-	-	22	9.9	
19	-	-	-	-	4	57.1	2	20.6	-	-	1	14.3	-	-	7	2.5	
20	-	-	-	-	1	13.7	1	16.7	2	23.3	1	10.7	1	16.7	6	2.4	
21	-	-	-	-	-	-	1	100.0	-	-	-	-	-	-	1	0.4	
22 +	-	-	-	-	1	20.0	2	40.0	1	20.0	-	-	1	20.0	5	1.6	
Total	4	1.6	49	19.5	67	36.0	52	21.1	27	11.7	11	4.5	13	5.3	247	100.0	

These data show that about a fifth of the first marriages that were dissolved in Lusaka were the marriages of women less than twenty five years of age. The corresponding percentage for Keembe was 11.6 per cent. There were significant differences in the ages at which the first marriages of Lusaka and Keembe women were dissolved. While 71.5 per cent of the Lusaka women whose first marriage broke up were aged between twenty and thirty-nine years of age, the percentage for Keembe women of the same age group was 56.5 per cent. Women aged 40-50 years of age, whose first marriages were dissolved accounted for 24.5 per cent (Lusaka) and 40.9 per cent (Keembe) of all women aged 12-50 whose first marriages were dissolved. Thus first marriages tended to be dissolved at earlier ages among Lusaka than Keembe women. For women in both areas, divorce was identified as the principal cause of the dissolution of first marriages although death of husband was frequently mentioned as a cause of dissolution of first marriage among older women ^{1/}. It may well be that some divorced cases were actually separations or desertions but it was decided to report the cause of dissolution as stated by the women.

Analysis of data on current age of women by age when first marriage ended shows that the dissolution of first marriages was related to the current age of the women. The data presented in Table 12 show that the younger the current age the younger the age when first marriage ended. The dissolution of the first marriage below 20 years of age was more prevalent among younger women than among older ones both in Lusaka and in Keembe.

A lower age at first marriage appeared to be related to a lower age when first marriage ended as shown in the data presented in Table 13. Thus, 46 per cent (Lusaka) and 45.6 per cent (Keembe) of women married before 15 years of age reported that their first marriages were dissolved before they were twenty years old. These data suggest that the younger the age at first marriage the younger the age when the first marriage breaks up. This evidence lends credibility to the view that marriages among women under twenty are more prone to dissolution than marriage to older women who are more mature emotionally and psychologically. Preliminary analysis of the data on education, religion and age when the first marriage was dissolved did not show any differentials either by education or religion ^{2/}.

Table 14 shows distribution for women by age at which first marriage ended and the reason why it ended. The data suggests that divorce was the single most important reason for the break up of marriages among women below thirty years of age. Thus, (72.5 per cent) of all dissolutions involving women aged 15-19 years in Lusaka were divorces, the corresponding figure for Keembe was 60.5 per cent. Among women aged 25-29 years the percentages of all dissolved first marriages due to divorce were 69.5 per cent for Lusaka and 61.3 per cent for Keembe. As women grow older the death of their husbands gradually becomes the main reason for the dissolution of their marital union.

^{1/} See Appendix 1.

^{2/} Appendices I-V.

Table 14. Distribution of women by age when and reason why first marriage ended urban (Lusaka) and rural (Keeembe) areas, Zambia

Age when first mar- riage ended	Reason why first marriage ended											
	Death		Divorce		Separation		Duration		Other		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
LUSAKA												
Under 15	-	-	7	100.0	-	-	-	-	-	-	7	1.0
15-19	10	8.9	29	75.5	1	0.9	1	0.9	11	9.8	112	20.0
20-24	17	12.0	104	73.2	2	1.4	5	3.5	14	9.9	142	35.5
25-29	20	25.3	55	69.6	-	-	-	-	4	5.1	79	15.7
30-34	9	27.3	19	57.6	2	6.0	1	3.0	2	6.0	33	8.2
35-39	7	41.2	9	52.9	1	5.9	-	-	-	-	17	4.2
40-44	4	80.0	1	20.0	-	-	-	-	-	-	5	1.3
45-49	4	80.0	1	20.0	-	-	-	-	-	-	5	1.3
Total	71	17.3	235	71.3	6	1.5	7	1.7	31	7.7	490	100.0
KEEEMBE												
Under 15	-	-	4	100.0	-	-	-	-	-	-	4	1.0
15-19	4	9.1	33	76.5	3	7.0	1	2.4	-	-	41	10.0
20-24	11	13.3	69	83.1	1	1.2	1	1.2	1	1.2	83	36.4
25-29	9	15.7	39	61.3	-	-	-	-	-	-	48	21.0
30-34	10	35.7	16	57.1	1	3.6	-	-	1	3.6	27	12.0
35-39	5	45.5	5	45.5	1	9.1	-	-	-	-	11	4.5
40-44	6	66.7	3	33.3	-	-	-	-	-	-	9	3.9
45-49	3	75.0	1	25.0	-	-	-	-	-	-	4	1.0
Total	40	21.0	170	74.6	6	2.6	2	0.9	2	0.9	220	100.0

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Table 15. Distribution of women by current age and by age at second marriage for urban (Lusaka) and rural (Keembe) areas.

Current Age	Age at second marriage									
	15-19		20-24		25-29		30 and over		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
LUSAKA										
15-19	2	69.0	3	20.0	1	6.7	2	13.3	15	4.7
20-24	14	36.2	24	7.5	1	2.4	2	4.9	41	12.0
25-29	9	16.8	23	53.3	10	20.3	1	2.1	43	15.1
30-34	16	21.3	21	29.0	20	31.7	9	12.0	75	23.5
35-39	7	12.3	14	24.6	17	29.8	19	33.3	57	17.9
40-44	6	13.0	12	26.1	11	23.9	17	37.0	46	14.4
45-50	2	5.4	3	21.6	8	21.6	19	51.4	37	11.5
Total	63	19.0	110	34.5	77	24.1	69	21.6	319 ^{a/}	100.0
KEEMBE										
15-19	-	-	-	-	-	-	-	-	1	0.6
20-24	6	54.5	5	45.5	-	-	-	-	11	6.4
25-29	2	11.1	10	55.6	5	27.0	1	5.5	18	10.5
30-34	6	15.0	15	39.5	10	26.3	7	18.4	38	22.1
35-39	3	9.4	6	13.7	7	21.0	16	50.0	32	17.6
40-44	3	12.0	1	4.0	6	32.0	13	52.0	23	14.5
45-50	2	4.2	17	36.2	14	29.2	14	29.0	47	27.3
Total	23	13.4	54	31.4	44	25.6	51	29.6	172	100.0

^{a/} Includes women in second marriages only.

Table 16. Distribution of women in second unions by number of other wives in first and second marriages

Location	Other wives in first and second marriages									
	None		1		2		3		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Urban (Lusaka) First	302	94.7	3	0.9	0	2.5	3	0.9	319*	100.0
Second	204	89.0	6	1.9	26	1.2	3	0.9	319	100.0
Rural (Keembe) First	134	94.0	2	1.3	22	13.0	-	-	158	100.0
Second	143	90.5	1	0.6	10	6.3	4	2.5	158	99.9

* Includes 1 woman with 4 co-wives and 2 women with 5 co-wives.

These data show that few women married for a second time shared their first or second marriages with other wives. In both rural and urban areas only about a tenth of these women were in polygamous unions. The evidence in this table suggests that the incidence of polygamy is not as high in Zambia as in Kenya where the percentage of currently married women in polygamous unions ranges from 24 per cent for the 15-20 year age group to 42 per cent in the 45-49 year age group.^{1/}

There was no strong evidence in the data that age when second marriage ended varied significantly from tribe to tribe. Divorce as a major reason for the dissolution of second marriages was common to women of differing religions. Thus, in Lusaka 10 out of 15 catholic women whose second marriage was terminated stated divorce as a cause. While the same percentage (12 out of 10) was reported by protestant women. In Keembe, divorce was given as the reason for the break up of the second marital union by 20 of the 33 protestant women whose second marriages terminated and by all 4 catholic women who broke up their second unions.

^{1/} Central Bureau of Statistics, Nairobi, Kenya Fertility Survey 1977-78 First Report Vol. 1 P. 80.

Conclusion

This study has investigated the prevalence, frequency and timing of marriage among women aged 12-50 years who were covered in this survey. The results of this analysis show that 63.7 per cent of all these women had been married at least once. In fact over ninety per cent of both urban and rural women had been married before their twenty-fifth birthday. Although the sample is too small for firm conclusions, the data presented here suggests that nearly all women in urban and rural areas in Zambia get married. Celibacy is not common among women aged over 30 years. The percentage single among women in the age group 30-50 years fluctuates around one per cent both in Lusaka and in Keembe.

Analysis of the distribution of ever-married women by current marital status suggested a relatively high level of marital stability in Lusaka and Keembe although there were relatively more divorced women in Keembe than in Lusaka. Thus, 15.9 per cent Lusaka and 31.5 per cent Keembe ever married women aged 12-50 years had been married more than once. The number of times women marry was not influenced by religion. However, the number of times a woman married was negatively correlated with education. Although the dissolution of first marriages was not uncommon among different tribes, the Bemba, Lenje and Lozi in Keembe had relatively low rates for first marriages.

Estimates of singulate mean and median ages of first marriage show a higher age for the low density areas (23.3 years mean, 21.8 years median) of Lusaka and the youngest singulate mean age at first marriage for the squatter areas. The analysis shows a distinct earlier rural than urban age at marriage which implies a longer period of exposure to risk of childbearing for a majority of Keembe women. It may be noted in the analysis of fertility that rural women bore more children on average than their urban counterparts.

Marital stability was positively related to an older age at first marriage. Thus, the data show that the proportion of women who married more than once decreased with increasing age. Age at first marriage was also positively related to a woman's level of education over 90 per cent of all illiterate women married below 21 years of age as compared with only 30.1 percent of those with Form III Secondary education. In general, the evidence suggests early and universal marriage in rural and urban areas, although women in the higher socio-economic groups tended to marry later.

Analysis of first marriages indicated that one out of every five urban and a third of all rural marriages were dissolved. Most first marriages which broke up in Lusaka were the marriages of women aged 20-29 years. Generally, first marriages tended to be dissolved at earlier ages in Lusaka than in Keembe, although the incidence of marital dissolution was higher in Keembe than in Lusaka. The evidence in this paper suggests that an earlier age at first marriage was related to a high incidence of marital dissolution and divorce was identified as the single most important reason for marital dissolution.

Evidence from the analysis of second marital unions indicates that in Lusaka, most women who married a second time did not break their unions. This suggests a lack of preparations for first marriage for these women. Almost a third, 26.7 per cent, of all Keembe women who had married twice had dissolved their second unions. As in the case of first marriages divorce was singled out as the most important reason for dissolution.

Analysis of number of wives in marital unions indicated that polygamy was not as prevalent in Zambia as in Kenya and that it was not related to the dissolution of marital unions. It was also observed that marital dissolution was equally common among different religious and ethnic groups. The trend towards the frequent dissolution of first marriage calls for in-depth studies on the types and nature of marriages which will identify those cultural, economic, and emotional factors related to this phenomenon. It also calls for applied research work in education for responsible parenthood.

There is a strong case for reducing the number of women who marry before twenty years of age. The first marriage of these women tend to be prone to dissolution with its attendant problems. Medical evidence shows that women at these ages tended to report more complicated and severe ailments with regards to reproduction than women married after twenty years of age. Women who marry early tend to be less educated, earn less and reproduce over longer periods. They also tend to bear children with lower birth weights who consequently experience higher infant mortality.

Appendix I
Distribution of women by education and age when first
marriage ended

Educational level of women	Age when marriage ended														Total	
	12-14		15-19		20-24		25-29		30-34		35-39		40-50			
	No.	Per- cent	No.	Per- cent	No.	Per- cent	No.	Per- cent	No.	Per- cent	No.	Per- cent	No.	Per- cent	No.	Per- cent
VEDIAN (LUSAKA)																
None	2	1.3	39	25.7	46	30.3	35	23.0	16	10.5	3	5.3	6	3.9	152	34.7
Primary grade 1-4	3	2.3	32	25.4	41	31.5	27	20.1	16	12.3	6	4.6	4	3.1	130	29.7
Primary grade 5 +	2	1.9	41	32.3	45	42.1	13	12.1	4	3.7	2	1.9	-	-	107	24.4
Secondary 1-2	-	-	3	12.5	13	54.2	5	20.1	2	8.3	1	4.2	-	-	24	5.5
Secondary 3 +, Trade School, Teacher Training	-	-	4	20.0	12	60.0	2	10.0	2	10.0	-	-	-	-	20	4.5
Post Secondary & University	-	-	-	-	2	40.0	2	40.0	-	-	1	20.0	-	-	5	1.1
Total	7	1.6	140	27.4	159	36.2	74	19.2	40	10.1	13	4.1	10	2.3	421	100.0
MUPAL (LELEKE)																
None	1	0.7	27	18.1	51	34.2	31	20.1	12	12.3	7	4.7	13	3.7	140	60.3
Primary grade 1-4	2	3.3	12	20.0	23	31.3	14	23.3	7	11.7	2	3.3	-	-	60	24.3
Primary 5 +	1	2.9	9	26.5	13	37.2	7	20.0	3	8.1	1	2.9	-	-	34	13.2
Secondary 1-2	-	-	1	-	5	-	-	-	-	-	-	-	-	-	3	1.2
Secondary 3 & 4, Trade School	-	-	-	-	-	-	-	-	-	-	1	100.0	-	-	1	0.4
Total	4	1.6	49	19.5	92	37.2	52	21.1	20	11.7	11	4.5	13	5.2	247	100.0

Appendix II

Distribution of women by age at first marriage and by reason why first marriage ended for urban (Lusaka) and rural (Keele) areas in Zambia

Age at first marriage	Reason why first marriage ended											
	Death		Divorce		Separated		Desertion		Other		Total	
	No.	Per-cent	No.	Per-cent	No.	Per-cent	No.	Per-cent	No.	Per-cent	No.	Per-cent
URBAN (LUSAKA)												
12-14	17	19.1	62	69.7	2	2.2	2	2.2	6	6.7	89	20.0
15-16	25	14.9	120	76.2	3	1.8	1	0.5	11	6.5	160	39.4
17-18	26	24.8	65	61.0	1	0.9	-	-	13	12.4	105	24.6
19-20	9	20.0	30	66.7	1	2.2	4	8.9	1	2.2	45	10.5
21-22	3	21.4	9	64.3	1	7.1	1	7.1	-	-	14	3.3
23-24	-	-	4	100.0	-	-	-	-	-	-	4	1.0
25 and over	-	-	1	50.0	-	-	-	-	1	50.0	2	0.5
Total	90	10.7	299	70.0	7	1.9	8	1.9	32	7.5	347	100.0
RURAL (KEELE)												
12-14	5	20.0	35	77.3	-	-	1	2.2	-	-	41	19.0
15-16	10	14.7	56	82.4	2	2.9	-	-	-	-	68	23.7
17-18	25	23.0	73	69.5	3	2.9	1	0.9	3	2.9	105	44.3
19-20	4	50.0	8	61.5	1	7.7	-	-	-	-	13	5.5
21-22	2	100.0	-	-	-	-	-	-	-	-	2	0.0
23-24	1	100.0	-	-	-	-	-	-	-	-	1	0.4
25 and over	2	66.7	1	33.3	-	-	-	-	-	-	3	1.3
Total	53	22.4	173	73.0	6	2.5	2	0.8	3	1.3	237	100.0

Appendix III

Distribution of women by religion and by age when first marriage ended, Lusaka

Religion	Age when marriage ended														Total	
	12-14		15-19		20-24		25-29		30-34		35-39		40-50			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
URBAN (LUSAKA)																
Catholic	5	2.5	57	26.9	71	33.0	35	17.0	19	9.7	6	4.1	2	1.0	117	45.0
Protestant	2	1.0	51	25.2	70	34.7	42	20.0	21	10.4	10	4.9	6	3.0	202	46.1
Moslem	-	-	2	66.7	-	-	1	33.3	-	-	-	-	-	-	3	0.7
Tradition	-	-	2	50.0	2	50.0	-	-	-	-	-	-	-	-	4	0.9
No religion	-	-	6	25.0	16	50.0	6	18.7	-	-	-	-	2	6.3	32	7.3
Total	7	1.6	120	27.4	159	36.0	84	19.2	40	9.1	13	4.1	10	2.3	421	100.0
RURAL (KEMPE)																
Catholic	-	-	2	11.1	6	33.3	1	5.6	3	16.7	2	11.1	4	22.2	10	7.3
Protestant	4	2.2	35	19.4	67	37.2	41	22.5	22	12.0	4	2.2	7	3.9	160	72.9
Moslem	-	-	-	-	1	100.0	-	-	-	-	-	-	-	-	1	0.4
No religion	-	-	12	25.0	15	31.3	10	20.0	4	8.3	5	10.4	2	4.2	48	19.4
Total	4	1.6	49	19.0	89	36.0	52	21.1	29	11.7	11	4.4	13	5.3	247	100.0

Appendix IV

Distribution of women by mother tongue and by age when first marriage ended urban (Lusaka) and rural (Keembe), Zambia

Mother tongue (tribe)	Age when first marriage ended														Total	
	Under 15		15-19		20-24		25-29		30-34		35-39		40-49			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Urban (Lusaka)																
Nyanja	2	2.6	20	35.0	26	33.3	9	11.5	5	6.4	5	6.4	2	3.9	78	17.6
Bemba	-	-	19	26.4	30	41.7	16	22.2	4	5.5	1	1.4	2	2.8	72	16.4
Lenje	1	2.9	3	23.5	14	41.2	7	20.6	3	9.2	-	-	1	2.9	34	7.0
Tonga	1	4.3	5	23.3	10	47.6	2	9.5	2	9.3	1	4.8	-	-	21	4.9
Lozi	-	-	2	10.0	11	55.0	3	15.0	4	20.0	-	-	-	-	20	4.6
Shona	-	-	1	20.0	1	20.0	2	40.0	1	20.0	-	-	-	-	5	1.1
Other	3	1.4	57	27.4	67	32.2	45	21.6	21	10.1	11	5.3	4	1.9	203	47.5
Total	7	1.6	120	27.4	159	36.3	84	19.2	40	9.1	18	4.1	10	2.3	433	100.0
Rural (Keembe)																
Nyanja	-	-	1	12.5	4	50.0	1	12.5	2	25.0	-	-	-	-	8	3.2
Bemba	-	-	3	50.0	1	16.7	-	-	2	33.3	-	-	-	-	6	2.4
Lenje	4	2.1	32	17.0	60	36.2	45	23.0	16	8.5	10	5.3	13	6.9	180	76.1
Tonga	-	-	6	46.1	4	30.0	1	7.7	2	15.4	-	-	-	-	13	5.3
Lozi	-	-	1	14.3	3	42.9	1	14.3	2	28.6	-	-	-	-	7	2.8
Shona	-	-	1	14.3	2	28.6	-	-	4	57.1	-	-	-	-	7	2.8
Other	-	-	5	27.0	7	35.0	4	20.0	1	5.0	1	5.0	-	-	18	7.3
Total	4	1.6	49	19.0	89	36.0	52	21.1	23	11.7	11	4.5	13	5.3	247	100.0

Appendix V

Distribution of women by mother tongue and by reason why first marriage ended

Mother tongue (tribe)	Reason why first marriage ended											
	Death		Divorce		Separation		Desertion		Other		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Urban (Lusaka)												
Nyanja	17	20.2	61	72.6	-	-	3	3.6	3	3.6	84	19.7
Bemba	17	23.9	47	66.2	1	1.4	-	-	6	8.5	71	16.6
Lenje	1	3.0	27	51.3	-	-	2	6.1	3	9.1	33	7.7
Tonga	2	2.5	17	31.0	-	-	-	-	2	9.5	21	4.9
Lozi	2	10.5	10	52.6	1	5.3	1	5.3	5	26.3	19	4.4
Shona	1	12.5	6	75.0	-	-	-	-	1	12.5	6	1.9
Other	40	20.5	131	63.6	6	3.1	2	1.0	12	6.3	191	44.7
Total	80	15.7	299	70.0	8	1.9	6	1.9	32	7.5	427	100.0
Rural (Keembe)												
Nyanja	2	22.2	8	66.7	-	-	-	-	1	11.1	11	3.0
Bemba	-	-	6	100.0	-	-	-	-	-	-	6	2.6
Lenje	39	21.1	132	73.7	5	2.8	1	0.6	2	1.1	179	75.5
Tonga	2	20.0	6	60.0	1	10.0	1	10.0	-	-	10	4.2
Lozi	1	14.3	6	55.7	-	-	-	-	-	-	7	3.0
Shona	5	71.4	2	28.6	-	-	-	-	-	-	7	3.0
Other	4	21.1	15	75.0	-	-	-	-	-	-	19	8.0
Total	53	22.4	179	73.0	6	2.5	2	0.8	3	1.3	237	100.0

FERTILITY LEVELS, PATTERNS AND DIFFERENTIALS IN ZAMBIA

Introduction

Declining mortality and constantly high fertility in Zambia as in most African countries has given rise to rapid population growth. This has stimulated a lot of controversial debate on the relationship between rapid population growth and development. It is interesting to note, however, that policy makers and planners have now begun to appreciate the importance of population variables in development planning. The integration of demographic variables into development planning calls for the collection, processing, analysis and publication of comprehensive demographic data in a manner that is useful for planning as well as the creation of institutional mechanisms for their integration into development planning.

This paper examines fertility levels, patterns, and differentials in Lusaka and Keembe areas of Zambia in an effort to understand factors related to observed indices of fertility. It attempts also to assess the magnitude of fertility differences among various groups and seeks to relate these differences to other variables such as age, marital status, education and type of work.

Source of data

Data for the present paper come from retrospective information on fertility collected in the first round of this survey during August-September 1978. The first round which was a retrospective survey collected basic demographic data and also information on age at first marriage, marital status, educational attainment, religion, mother tongue, orphanhood, number of times married, type of marriage, knowledge, attitude and practice of family planning and fertility and mortality.

The subsequent prospective surveys elicited information on pregnancy status and outcome, persons born and dead in the household, migration, value of children and child care needs, socio-economic roles of women, breastfeeding and weaning practices, postpartum sexual abstinence and nutrition. These data are used to analyse the fertility of Zambia women covered in this survey.

Fertility Levels

Child-women ratio

The child-women ratio, defined as the ratio of children age 0-4 years to women aged 15-49 years per 1000 was 969 for Lusaka, and 892 for Keembe.

Crude birth rate

The reported crude birth rate, calculated from data for this survey suggests that fertility is high in Zambia. Table 1 shows crude birth rates based on reported births in the year preceding the survey for Lusaka and Keembe to be 46.0 and 35.1 respectively. The rather low crude birth rate for Keembe is due certainly to a greater omission of births reported in the survey for this area than for Lusaka.

Table 1. Reported crude birth rates for Lusaka and Keembe

Locality	Total population	Total births	Crude birth rate
Lusaka	13,084	602	46.0
Keembe	3,423	120	35.1
Total	16,057	722	43.7

Information on pregnancy status and outcome and births in the household collected during the four rounds of the survey provided estimates of crude birth rates of 40 per thousand for Lusaka, and 34.1 per thousand for Keembe. These estimates of crude birth rates especially that for Keembe were rather low probably due to errors of omission, concealment of pregnancy and inaccurate time reference for vital events. There was also the problem of establishing a population base for these estimates since as demonstrated in another paper, migration in the survey areas was very high. This raises the issue of the collecting system which gives the most plausible estimates of vital rates. The two collecting systems are fraught with problems of omissions and inaccurate time reference for vital events of varying degrees. It is to be noted that the Zambian survey could not overcome the inherent methodological problems of shrinking survey population and omission of vital events which have been observed in other enquiries of this kind 1/.

1/ Infant and early childhood mortality in relation to fertility patterns, Sierra Leone, 1973-1975, Ministry of Health, Freetown, and WHO Geneva, 1980 pp.64-76. Infant and early childhood mortality in relation to fertility patterns, Sudan, 1974-1976, Ministry of Health, Khartoum, and WHO, Geneva, 1981 pp. 1, 60-73, 129-131.

It is however plausible to state that the crude birth rate of 46 per thousand for Lusaka was closer to reality than the estimate for Keembe.

Estimates of crude birth rates were also derived by using reverse projection of population and children aged 0-4 years in the survey. The reverse projection method gave an estimated crude birth rate of 51 per thousand for Lusaka, and 47 per thousand for Keembe.

Total fertility rate

Estimates of the total fertility rate (mean number of children a woman would bear by the time she gets to menopause) are presented in Table 2. These estimates show that fertility is very high in Lusaka and Keembe. It would be observed that all but one of the methods of estimation used showed higher fertility for Lusaka than for Keembe although the number of children wanted or recommended for Keembe women was higher than that for Lusaka. Estimates of total fertility rate for Lusaka range from 6.6 to 8.2 compared with a range of 5.7 to 7.7 for Keembe, centering around 7 to 8 children for both Lusaka and Keembe. These estimates are relatively close to estimates obtained in other studies 1/.

Table 2. Estimates of total fertility rate for Lusaka and Keembe

Method/data	Lusaka	Keembe
Current retrospective fertility	6.6	5.7
Brass' $1/2 \left(\frac{P_4}{F_4} + \frac{P_5}{F_5} \right)$	8.2	7.6
Mean parity of women aged 40 years and over	7.5	6.6
Coale's empirical formula $\frac{P_3^2}{P_2}$	7.9	7.6
Brass and Rachad, $\left(\frac{P_4}{P_3} \right)^4 P_2$	7.3	7.7
Number of children wanted	6.6	7.2
Number of children recommended	6.3	8.2

1/ The Population of Zambia, pp. 41-43 CICRED Series 1975, Ohadike and Habtemariam.

The 1974 Sample Census and Survey gave a mean parity of 6.6 for women aged 45-49 years 1/. The estimates in Table 2 are as high as total fertility rates estimated for many African countries during the 1975-1980 period 2/. These estimates also fall within the range of recent estimates from Lesotho (5.7) and Kenya (8.3) 3/.

Mean parity

Analysis of data on parity by age group of women also showed that fertility was high in the survey areas. The mean parity for all women aged 15-49 was 3.3 and 3.9 children for Lusaka and Keembe, respectively; the corresponding figures for ever-married women were 4.5 and 5.0 for Lusaka and Keembe, respectively. It is interesting to note that the overall mean parity of ever-married women for 13 Asian and Latin American countries varied from as low as 3.3 children in Nepal (3.5 in Indonesia, 3.6 in the Republic of Korea) to as high as 4.5 children in Peru and Mexico (4.3 in Pakistan and Colombia) 4/. The mean parities for the two survey areas suggest a fertility level which is quite close to that of Kenya, Mexico and Peru.

The estimates of fertility levels obtained from the retrospective data on births to women in the last 12 months, and number of children ever born to women were under-reported for Keembe, and appeared to have been better reported for Lusaka. The estimates of total fertility for Lusaka obtained from the current retrospective fertility are lower than the reported and adjusted estimates of total fertility rate based on the number of children ever born to women aged 40 years and over. However, the estimates of level of fertility, (total fertility rate of 6.6 children, and crude birth rate of 46 per 1000 population) obtained from the current and retrospective enquiries seemed more plausible and have hence been accepted. For Keembe, the medium estimate of total fertility rate of 7.6 and the corresponding crude birth rate of 47.0 per 1000 are accepted. The selected estimates of fertility levels are given in Table 3.

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- 1/ Central Statistical Office, Lusaka, fertility.. data from census questions and from pregnancy histories. A comparison, Lusaka, October 1975, pp. 1-9.
 - 2/ UNECA, Population Dynamics; Fertility and Mortality in Africa, proceedings of the Expert Group Meeting on Fertility and Mortality Levels and Trends in Africa and their Policy Implications. Monrovia, Liberia, November 26-1 December 1979.
 - 3/ UNECA, Marital composition and Fertility; Kenya and Lesotho; A paper presented to UN Working Group on Comparative Analysis of World Fertility Survey Data, fifth meeting, P. 22.
 - 4/ UN, Selected factors affecting fertility and fertility preferences in developing countries, New York 1981.
 - 5/ UNECA, Effects of marital duration, ethnicity and education on mean parity through standardization. The case of Kenya and Lesotho. A paper presented to the United Nations Working Group on comparative Analysis of World Fertility Survey Data, fifth meeting.

Table 3. Estimates of crude birth rate and total fertility rate

Place	Crude birth rate	Total fertility rate
Lusaka	46.0	6.6
Keembe	47.0	7.6

Fertility pattern

The relatively high indices of fertility in Lusaka and Keembe are inextricably related to the prevailing pattern of reproduction to which we now turn. The observed age specific fertility rates for the two survey areas are presented in Table 4. The age specific fertility distribution shows that fertility for women aged 25-29 years in Keembe was grossly under-reported. This was probably due to under-reporting of births to women in this age group, age misstatement by women or to both factors. Since child-bearing is relatively early in Keembe it is expected that the mode of the fertility distribution should be in the 20-24 age group but that was not the case. The attainment of the peak of the fertility distribution in the 30-34 age group confirms our earlier observation of gross under-reporting of births or age misstatement. For Lusaka, the mode of the fertility distribution was in the 25-29 age group. The age specific fertility distribution shows the high fertility performance of women aged 20-39. Women bear most of their children in this age group. Table 4 also shows that many births occur to women aged 15-19 and 40-44.

Table 1 Comparison of age specific fertility rates based on current survey
(Lusaka and Keembe) and the 1969 Population Census of Zambia

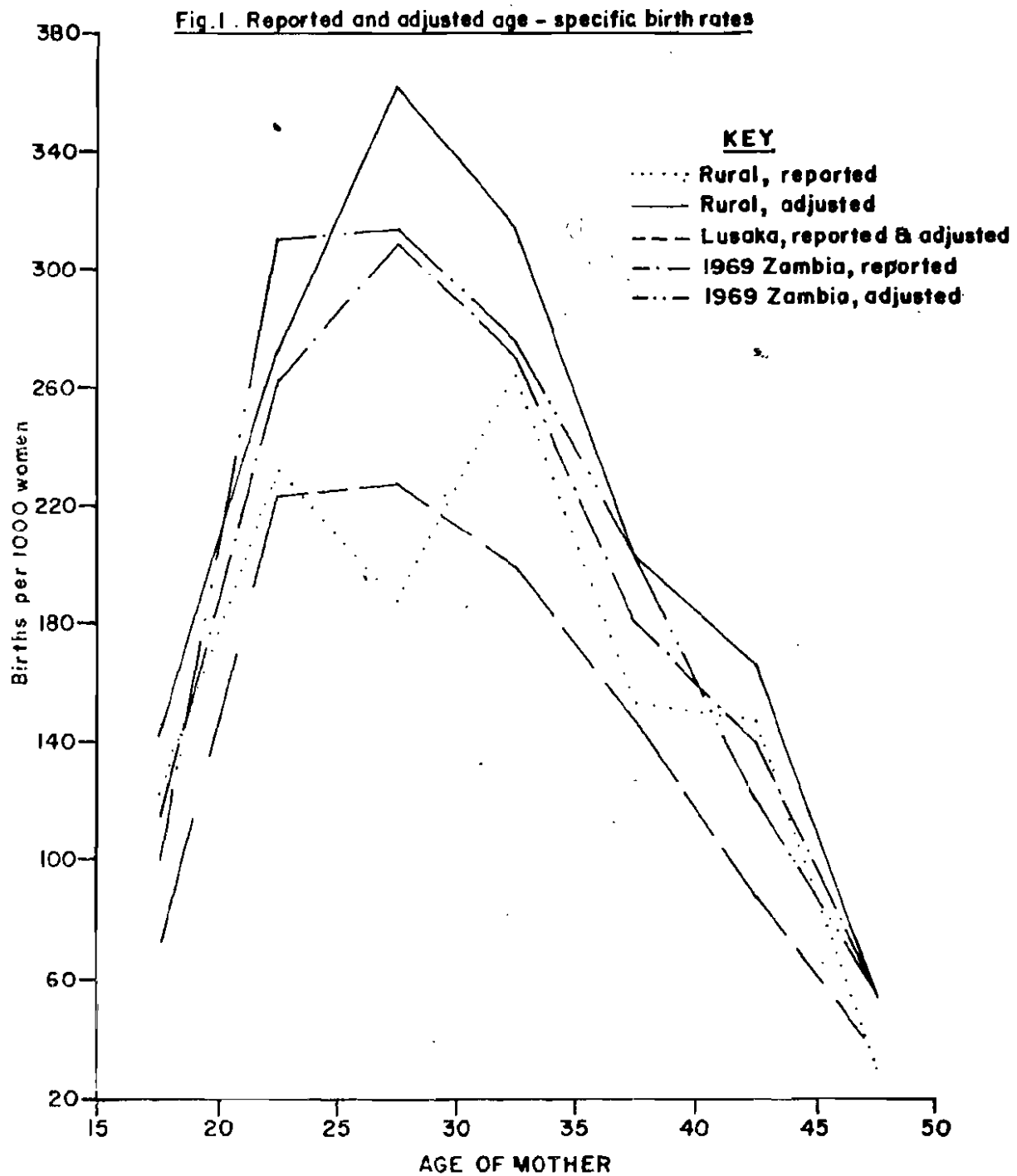
Age group	LUSAKA		KEEMBE		1969 POPULATION CENSUS <u>a/</u>	
	ASFR	%	ASFR	%	ASFR	%
15-19	0.1149	8.7	0.1227	10.8	0.0724	7.2
20-24	0.2609	19.6	0.2330	20.5	0.2244	22.4
25-29	0.3085	23.2	0.1868	16.4	0.2266	22.5
30-34	0.2700	20.3	0.2647	23.2	0.1989	19.8
35-39	0.1797	13.5	0.1538	13.5	0.1472	14.6
40-44	0.1395	10.5	0.1481	13.0	0.0869	8.6
45-49	0.0561	4.2	0.0294	2.6	0.0403	4.9
Total	1.3296	100.0	1.1385	100.0	0.9967	100.0
Total fertility rate	6.6	-	5.7	-	4.98	
Mean age of fertility schedule	29.9	-	29.6	-	30.0	

a/ Source: Ohadike P.O., and Habtemariam Tesfaghiorghis,
op.cit., p.34.

Table 5 Comparison of adjusted age-specific fertility rates between the
current survey (Lusaka and Keembe) and the 1969 population census.

Age group	LUSAKA	KEEMBE	1969 POPULATION CENSUS
15-19	0.1149	0.1431	0.1002
20-24	0.2609	0.2732	0.3107
25-29	0.3085	0.3612	0.3138
30-34	0.2700	0.3153	0.2754
35-39	0.1797	0.2036	0.2038
40-44	0.1395	0.1668	0.1203
45-49	0.0561	0.0560	0.0558
Total	1.3296	1.52	1.38
Total fertility	6.6	7.6	6.9

11. On the basis of the accepted total fertility rate of 6.6 for Lusaka and 7.6 for rural Keembe, the observed age-specific fertility rates were adjusted as shown in Table 4. Since reported current fertility for Lusaka was considered plausible, no adjustments were made to age-specific fertility rates for the city.



Comparison of the age pattern of fertility for Lusaka and Keembe with that of the 1969 population census of Zambia shows some similarities. It is seen that the majority of births occurred to women aged 20-39 and the peak of fertility was attained in the 25-29 age group, and that births to women aged 15-19 were fewer than births to women aged 40-44. A unique feature of the fertility pattern observed in Zambia is that 15-19 years old women had fewer births than women aged 40-44 years. This pattern differs from patterns observed for Ghana, Kenya and Lesotho 2/.

Striking differences between the 1969 population census and the current survey include the shift in the concentration of fertility from age 20-29 in the 1969 population census to age group 25-34 in the current survey, the fewer births to women aged 20-24 than to women aged 30-34 and the increased fertility of women aged 15-19 years 2/. It is hard to ascertain at this juncture whether the shift in fertility concentration is real or due to errors of reporting of births, age misstatements by women, or distortions in age structure due to migration.

An analysis of mean parities by age group of women presented in Table 6 shows that the mean number of children ever-born increases steadily with the age of women. As expected this steady increase culminates in a mean parity

Table 6. Comparison of observed mean parities by age group of women in the 1969 population census, 1974 sample census and survey, and the current survey (Lusaka and Keembe)

Age group	ECA/CSO Survey 1978-1979		1969 population census	1974 sample <u>a/</u>	
	Lusaka	Keembe		Census	Survey
15-19	0.33	0.36	0.4	0.44	0.52
20-24	1.75	1.66	1.9	1.76	1.85
25-29	3.71	3.56	3.4	3.56	3.58
30-34	5.31	5.23	4.6	5.32	5.03
35-39	6.62	6.0	5.1	6.21	5.96
40-44	7.19	6.74	5.1	6.19	5.42
45-49	7.92	6.51	5.0	6.5	6.26
Total	3.6	3.91		3.40	3.24

Source: g/ CSO, op.cit., p. 5.

1/ -Ohadike P. O. and Habtemariam Tesfaghiorghis, Ibid, p.38 and p.45.
-UNECA, Marital Composition and fertility: Kenya and Lesotho op.cit.

2/ - See fig. 1

of 7.92 for women in the 45-49 year age group for Lusaka and 6.5 for Keembe. The peak in the latter area is however, attained in the 40-44 age group (6.74). The decline after this age group suggest omission of births due to recall lapse. The peak of these parities was attained in the 35-39 year age group for data from the 1969 population census.

The data in Table 5 also suggest a decrease in fertility among women aged 15-19 years between 1969 and 1979. Although the lower parity for this age group may have been affected by omissions, the expansion of general education and a higher age at first marriage may have contributed to reducing fertility among these young women.

Fertility Differentials:

Fertility and age at first marriage

The timing of first marriage, it was pointed out in the analysis of marriage, is a very useful index of the beginning of exposure to the risk of childbearing. Early and universal marriage among African women has been identified as a major factor contributing to the high fertility levels observed in the continent. The mean ages at first marriage were 17.1 and 16.2 years for Lusaka and Keembe women respectively, and the corresponding singulate median ages at marriage were 19.6 and 19.5 years. These data suggest rather early marriage among urban and rural women in Zambia.

Table 7 presents distribution of mean parities by age at first marriage and current age of ever-married women. Although individual cells are too small to justify firm interpretation of these parities, these data suggest that early age at marriage was associated with higher fertility. For instance, Keembe women aged 20-24 who married under 15 years of age had 3 children more than their counterparts who married at the age of 21 years and above; the corresponding number for Lusaka was 2. This finding corroborates other studies which have investigated the topic^{1/}.

1/ Healthier Booth and Iqbal Alam, Fertility in Pakistan: Levels, Trends and Differentials. Substantive Findings Session No. 9 World Fertility Survey Conference 7-11 July 1980. p. 56.

- Central Bureau of Statistics. Major Highlights of the Kenya Fertility Survey. Social Perspectives vol. 4 No. 2. 1979.

Table 7. Mean parity by age at first marriage and current age of ever-married women

Age at first marriage	Mean parity	Current Age						
	No. of mothers	15-19	20-24	25-29	30-34	35-39	40-44	45-49
L U S A K A								
Under 15	Parity							
	No. of mothers	1.66 35	3.09 51	5.25 51	6.46 52	8.50 46	8.07 29	8.29 14
15-16	Parity	1.52	2.96	4.80	6.80	8.00	9.00	8.54
	No. of mothers	71	134	141	127	85	55	37
17-18	Parity	1.48	2.43	4.60	5.91	6.91	8.37	9.06
	No. of mothers	46	167	109	93	75	46	34
19-20	Parity	1.25	1.80	4.01	5.31	7.50	8.04	9.33
	No. of mothers	4	94	69	61	42	24	12
21+	Parity	1.33	1.76	2.84	4.83	6.00	6.13	6.82
	No. of mothers	21	63	77	53	41	15	22
Total	Parity	1.51	2.48	4.17	6.04	7.44	8.36	8.42
	No. of mothers	177	509	446	386	289	169	119
K E E M B E								
Under 15	Parity	1.25	4.67	4.9	7.32	7.62	10.91	8.4
	No. of mothers	4	12	10	19	13	11	10
15-16	Parity	2	2.67	5.41	6.25	5.96	8.44	7.09
	No. of mothers	11	18	22	24	27	27	34
17-18	Parity	1.36	2.50	4.35	6.30	8.06	7.23	7.72
	No. of mothers	11	20	31	33	33	31	39
19-20	Parity	2	2.0	5.67	5.33	8.33	7.33	10.17
	No. of mothers	1	10	6	9	3	3	6
21+	Parity	1.50	1.72	3.33	5.33	6.12	5.00	4.33
	No. of mothers	10	11	9	9	8	3	9
Total	Parity	1.59	2.72	4.71	6.31	7.14	8.09	7.96
	No. of mothers	37	71	78	94	84	75	98

Nuptiality and fertility

The structure and changes of nuptiality of the population at any given point in time is the most important proximate variable affecting fertility. The marital composition of the population, laws and norms governing the entry into marital union, marriage, remarriage, divorce and widowhood, and societal norms about pre-marital chastity and extra-marital births are all important aspects of nuptiality that determine the fertility of a population.

The marital status composition for Lusaka among women aged 15-49 years was such that the majority 69.2%, were married, and a significant proportion, 25.3% were single. The incidence of divorce and separation, and widowhood were low, 4% and 1.5%, respectively. For Keembe, the survey showed that 64.5% were married, 20.5% were single, 11.2% were divorced, and 3.8% were widowed. The incidence of singleness was significant and was mostly concentrated in the young age group 15-24 who postpone consummation of marriage at these age groups mainly due to their education. More than 71% of women aged 15-19 years, and more than 21% of women aged 20-24 were single. The provision of greater opportunities for higher education will continue to result in an increasing incidence of singleness among young women and thus will have a depressant effect on fertility.

Early marriage contributes to high fertility of women due to their long exposure to child bearing. Analysis of the distribution of married women by age at first marriage showed that 62% of Lusaka women, and 79% of Keembe women had married before they reached the age of 17 years, and almost all, 90% of the married women from Lusaka, and 96% of the married women of Keembe, were married before they reached the age of 20, demonstrating that marriage was contracted at a very young age.

Analysis of interrelationships of nuptiality and fertility using proportion married, (I_m) proportion single, (I_s) proportion divorced, (I_d) and proportion widowed, (I_w) can be derived by using the methodology of the relation between nuptiality and fertility developed by Coale ^{1/}. The proportion married Index, I_m , measures the extent to which marriage contributes to the achievement of the potential maximum fertility of the population. The proportion married index, the proportion single, divorced and widowed indices for Lusaka and Keembe are calculated by multiplying the proportions married, single, widowed and divorced in each age group by the Huterite schedule of marital fertility and dividing the sum of the products by the total fertility rate of

^{1/} Coale A.J. (1965), Factors Associated with the Development of Low Fertility, A Historical Summary, United Nations, World Population Conference, New York.

- (1969), The Decline of Fertility in Europe from the French Revolution to World War III, in Fertility and Family Planning, ed. S.J. Behrman, Leslie Corsa, Jr. and R. Freedman, Ann. Arbon.

PREGNANCY ORDER AND OUTCOME

The survey showed that of total pregnancies, 90 per cent in Lusaka, and 89 per cent in Keembe ended in live births; 6.3 per cent in Lusaka, and 6.0 per cent in Keembe ended in miscarriages, and 2.8 per cent in Lusaka, and 3.1 per cent in Keembe ended in still births.

The distribution of total live born children, miscarriages and still births by pregnancy order is given in Table 9.

Table 9. Distribution of Pregnancies by Order: Lusaka and Keembe

Pregna- ncy order	Pregnancies	L U S A K A		KEEMBE
		Live Births	Miscarriages Still births	Live Births
1	19.5	19.3	20.7	17.1
2	17.3	17.1	18.9	15.8
3	14.8	15.1	12.3	13.8
4	12.5	12.7	11.2	12.1
5	10.3	10.3	10.5	10.5
6	8.1	8.1	8.4	8.8
7	6.3	6.4	5.1	7.2
8	4.2	4.3	4.0	5.0
9 and over	6.8	6.6	9.0	9.7
Total = N	12,074	10,869	1,205	2,835
%	100.0	90.0	10.0	

It will be observed that due to the very high fertility, the percentage of higher order pregnancies and live births were significant, and that the reduction to overall fertility due to pregnancy wastage, was about 10 percent. The pregnancy wastage was under-reported for many voluntary abortions might not have been reported as abortion accounted for only 0.9 per cent in Lusaka, and 1.9 per cent in Keembe.

If there was no pregnancy wastage the mean parity per mother could have been 4.37 children instead of 3.94 in Lusaka, and 5.05 instead of 4.49 in Keembe. To see what the potential mean parities by age group of mother could have been in the absence of pregnancy wastage, the mean live births, mean pregnancy wastages and mean pregnancies by age group of mothers is presented in Table 10. It will be observed from Table 10 that the mean pregnancy wastage per woman increases with increasing age of women, and it rises from 0.1 pregnancy wastage for woman aged 15-19 to about one child wastage for woman aged 45-49 years.

Table 10. MEAN PARITY BY PREGNANCY OUTCOMES AND AGE GROUP OF MOTHERS

Age group of mothers	L U S A K A				K E E M B E			
	Mothers	Mean live birth	Mean Pregnancy wastage	Mean total Pregnancies	Mothers	Mean live birth	Mean Pregnancy Wastage	Mean total Pregn.
15-19	177	1.27	0.14	1.41	38	1.45	0.08	1.53
20-24	509	2.07	0.18	2.26	71	2.07	0.23	2.30
25-29	446	3.63	0.38	4.04	78	3.49	0.44	3.92
30-34	386	4.93	0.52	5.45	94	4.93	0.41	5.34
35-39	289	5.94	0.58	6.52	84	5.76	0.79	6.55
40-44	169	6.24	0.67	6.92	75	6.25	0.84	7.09
45-49	119	5.68	0.92	6.61	95	5.56	0.83	6.39
Total	2095	3.94	0.42	4.37	538	4.49	0.56	5.05

Fertility and Marital Status

Analysis of fertility by marital status presented in Table 11 shows that excepting widows married women in both Lusaka and Keembe had higher parities than other women. This is due partly to the likely age difference between widows as a group and the other women and partly to the small number of observations. Widows comprised 2.0 and 4.6 per cent of the total number of women in Lusaka and Keembe respectively. The mean parity of ever married women and currently married women was about the same; 5 children in Lusaka and 6 in Keembe suggesting that dissolution of marriages does not mark the end of child-bearing and also due to the fact that most dissolutions occur when they had already born a large number of children. As expected, never married women had the lowest fertility, although they had a significant mean parity of about 2 children. Separated and divorced women had almost the same fertility; 4 children in Lusaka and 5 children in Keembe.

Table 11. Per cent distribution of women by mean parity and marital status

Marital status	LUSAKA		KEEMBE		TOTAL	
	Number of women	Parity	Number of women	Parity	No. of women	Parity
Never married	97	1.65	28	1.79	125	1.68
Currently married	1900	5.05	441	6.11	2341	5.25
Separated	21	4.48	6	4.66	27	4.52
Divorced	78	4.38	61	5.07	139	4.68
Widowed	45	6.60	26	6.11	71	6.42
Total	2141	4.90	562	5.77	2703	5.08
Ever married women	2044	5.06	534	5.98	2578	5.25

Table 12 presents analysis of current fertility (births in the twelve months preceding the survey) by marital status of women. The data show that 91.1 per cent of all births in Keembe occurred to married women.

Table 12. Marital status of women who had births during the preceding year in urban (Lusaka) and rural (Keembe) areas

Marital status	LUSAKA		KEEMBE		TOTAL	
	Number of births	%	Number of births	%	Number of births	%
Never married	26	4.3	15	12.7	41	5.7
Currently married	547	91.1	90	76.4	637	88.6
Separated	5	0.8	3	2.5	8	1.1
Divorced	20	3.3	9	7.6	29	4.1
Widowed	3	0.5	1	0.8	4	0.6
Not stated	1		2		3	
Total	602	100.0	120	100.0	722	100.0

However, the data also suggest the existence of significant non-marital fertility. Thus 9 per cent of all Lusaka births and 24 per cent of all births in Keembe were the children of women who were not in the married state at the time of the survey. There were more of such births to never married than to divorced or separated women. Surprisingly, a greater percentage of births occurred to never married women in Keembe than in Lusaka where traditional norms would appear to have been less binding.

Fertility and Level of Education

In order to assess the effect of educational attainment on fertility, it was necessary to control for age at first marriage because better educated women are known to marry later than their uneducated counterparts. Table 13 shows mean parity by age at first marriage and level of education. In general, a higher level of education is associated with significantly lower fertility. For example, illiterate women in Lusaka who married under 15 years of age had 2.6 children more than their counterparts with secondary form 1-2 education and 4 children more than those with secondary Form 3 and higher. In Keembe, women who had never been to school and were married under 15 years of age

had 2.3 children more than women whose educational level was primary grade 5 and above. The fact that educated women had lower fertility than non-educated women is due to the delayed age at marriage of educated women. As shown in Table 13 Lusaka women with Secondary Form 3 or higher education marry on average three years later than those with no education. It is also due to the acceptance of small family size norms as a result of education, which is usually observed among African women with secondary or higher education. As many other studies have demonstrated illiterate women had almost the same fertility as women with primary grades 1-4 education, and the latter seem to have higher fertility in Keembe. The higher fertility of primary educated women may be due to less adherence to traditional practices regarding sexual abstinence and breastfeeding, without changing their attitudes towards family size norms. Primary educated women would have acquired relatively better knowledge of personal hygiene and nutritional status which might predispose them to less pregnancy wastage than their illiterate counterparts and also to better reporting by primary educated women. It is interesting to note that similar findings have been reported by other studies 11/.

11/ Ministry of Health, Freetown and WHO Geneva: Infant and Early Childhood Mortality in Relation to Fertility Patterns. Report on ad-hoc Survey in Greater Freetown, the Western Area and Makeni the Northern Province, Sierra Leone, 1973 - 1975, 1980 p. 98.

-UNECA. Fertility Differentials in Africa: Population Dynamics, Fertility and Mortality in Africa. Addis Ababa, 1979, pp. 252-264.

Table 13 Mean parity by age at first marriage and level of education of ever-married women

Age at first marriage	Mean parity No. of women	No. education		Primary Grades 1-4		Primary Grade 5+		Secondary Form 1-2	Secondary Form 3 or Higher
		Lusaka	Keembe	Lusaka	Keembe	Lusaka	Keembe	Lusaka	Lusaka
Under 15	Parity	6.5	7.1	6.3	7.3	4.3	4.8	3.9	2.5
	No. of women	104	45	82	26	77	9	13	2
15-16	Parity	7.1	6.6	5.9	7.5	3.9	3.3	3.0	3.6
	No. of women	190	97	209	40	196	25	34	20
17-18	Parity	6.3	6.6	5.7	6.5	3.9	4.0	3.7	3.6
	No. of women	142	105	127	57	198	34	55	48
19-20	Parity	5.5	6.0	6.0	6.8	4.4	4.0	4.3	2.6
	No. of women	51	16	61	10	106	11	31	57
21 and over	Parity	5.2	3.5	6.2	4.9	4.4	2.5	3.3	3.2
	No. of women	30	27	31	14	34	17	32	62
Total	Parity	6.5	6.4	6.0	6.8	4.1	3.6	3.7	3.2
	No. of women	517	290	510	147	611	96	165	189
Mean age		16.2	16.5	16.4	16.6	16.8	17.5	17.9	19.2

Fertility and mother tongue

In Lusaka, the women covered in the Survey belonged to many ethnic groups, with Nyanja and Bemba being the predominant groups whereas in Keembe, the major ethnic group was Lenje. As can be seen in Table 14, there was no difference in the over-all mean parity between the Lenje and the other ethnic groups in Keembe. In Lusaka, a mean parity of 5 children was reported for women of the predominant ethnic groups: Nyanja, Bemba, and Lenje. The Tonga and Lozi reported low mean parities, 4.1, 3.7 respectively. The lower mean parities reported for the Tonga and Lozi confirms earlier findings by J. C. Mitchel, and P. O. Ohadike ^{12/} that fertility was lower among these ethnic groups. The Lenje in Keembe had significantly higher fertility than the Lenje in Lusaka.

When age at first marriage was controlled, mean parities for the Tonga and Lozi are lower than mean parities for the Nyanja, Bemba and Lenje. The Nyanja; Bemba and the other ethnic groups had about the same fertility irrespective of age at first marriage.

While the Tonga and Lozi had a relatively late mean age at first marriage of 19.2 and 21.2 years respectively, the others married at relatively earlier ages. The Nyanja, Bemba and Lenje in Lusaka had mean age at first marriage of 18.5, 18.2, and 17.5 years respectively. The Lenje in Keembe had mean age at first marriage of 18.3 years. This seems to suggest that the fertility differentials among the ethnic groups are due in part to differences in age at first marriage.

^{12/} See P. O. Ohadike and Habtemariam Tesfaghionghis. The Population of Zambia, op.cit. pp. 45-51.

Table 14. Mean parity by age at first marriage and mother tongue; Lusaka, Keembe

Age at first marriage	Mean parity No. of women	L U S A K A						KEEMBE	
		Nyanja	Bemba	Lenje	Tonja	Lozi	Other	Lenje	Other
Under 15	Parity	4.9	6.2	5.1	5.2	3.8	6.1	6.3	7.9
	No. of women	52	45	31	12	5	133	59	21
15-16	Parity	5.6	5.5	4.8	4.4	4.3	5.6	6.3	6.3
	No. of women	153	103	40	38	22	293	122	41
17-18	Parity	5.2	4.8	6.3	4.5	4.2	4.6	6.4	5.3
	No. of women	137	93	28	43	21	248	137	61
19-20	Parity	4.7	4.4	4.1	3.4	3.3	4.9	5.5	5.6
	No. of women	76	45	15	23	17	130	26	12
21+	Parity	4.0	3.7	3.4	3.4	3.0	3.7	3.3	4.5
	No. of women	63	45	10	31	32	112	42	17
Total	Parity	5.0	5.1	5.0	4.1	3.7	5.1	5.9	5.9
	No. of women	481	331	124	157	97	916	386	152

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RURAL/URBAN RESIDENCE AND FERTILITY

Migration has an effect in determining the levels of fertility. Residence in rural or urban environs has a role in shaping fertility norms, behaviour and attitudes if urban way of life is markedly different from rural way of life.

Table 15 and 16 set out mean parity by age group of mothers and by length of residence in rural and urban areas for the surveyed women in Lusaka and Keembe. If we consider residence in rural areas for Lusaka women, the mean parities ranged from 4.1 children for those women who had never lived in or resided for less than one year in rural areas to 4.4 children for those who resided for 10-14 years and 6.4 children for those who resided for 20 or more years. The apparent high fertility of those women who had resided in rural areas for longer periods than those who had not resided at all or resided for shorter periods was due to age differences of women, as controlling for age shows of no significant differences. This is best shown by mean age which ranged from 27 years for those who had never lived in rural areas to 36 years for those who had resided for 20 or more years in rural areas. An examination of the fertility differentials by length of residence in urban areas shows that recent migrants had lower fertility than long time migrants as evidenced by mean parity of 2.8 for those who resided in urban areas for less than five years to 4.2 for those who resided for 5-9 years, about 5 children for those who resided for 10 to 20 years, and about 6 children for those who resided for 20 or more years.

Analysis of the fertility differentials of Keembe women by length of residence in rural areas shows that women who had resided for longer periods in rural areas had higher mean parity than those who had resided for shorter periods. If residence of Keembe women in urban areas was considered, those who never resided in urban areas had slightly higher fertility than those who had resided for ten or more years, although the latter were little aged.

It is interesting to note that Lusaka women who had resided in rural areas for 20 or more years had about the same fertility (6.35 children) as those Keembe women who had never resided in urban areas (6.14 children). The fact that both Lusaka and Keembe women who had resided in rural areas had similarly high fertility was because of their similar old ages as given by the mean age of 35.8 years for Lusaka, and 34.2 years for Keembe.

Table 15. MEAN PARITY BY AGE GROUP OF MOTHERS AND LENGTH OF RESIDENCE
IN RURAL AND URBAN AREAS: LUSAKA

AGE GROUP		Residence in Rural Areas in Years					Residence in Urban Areas in Years				
		Never lived or lived for less than 1 year	1-9	10-14	15-19	20+	Resided for less less than 5 years	5-9	10-14	15-19	20+
15-19	Parity	1.48	1.56	1.48	1.49	--	1.52	1.36	1.61	1.54	-
	Women	42	54	31	51	--	60	28	33	57	-
20-24	Parity	2.55	2.36	2.65	2.44	2.33	2.03	2.77	2.69	2.39	2.27
	Women	130	94	89	157	39	110	120	70	54	155
25-29	Parity	4.39	4.35	4.55	4.40	4.02	3.52	4.00	4.81	4.42	4.39
	Women	94	71	56	144	81	33	103	113	43	154
30-34	Parity	5.90	6.07	6.53	6.08	5.80	5.38	6.08	5.81	6.13	6.35
	Women	42	30	51	102	161	13	62	139	71	101
35-39	Parity	7.61	7.89	7.42	8.38	7.04	5.93	6.75	7.23	7.86	7.85
	Women	33	27	24	69	136	14	24	61	66	124
40+	Parity	8.55	8.24	7.69	8.61	8.37	8.44	8.12	8.14	7.88	8.58
	Women	20	21	16	62	169	9	25	43	36	175
Total	Parity	4.09	3.98	4.39	4.83	6.35	2.76	4.21	5.19	5.03	5.84
	Women	361	297	267	585	586	239	362	459	327	709
Mean age		26.99	26.71	27.54	29.11	35.83	24.19	27.72	30.46	29.82	33.14

Table 16. MEAN PARITY BY LENGTH OF RESIDENCE IN RURAL AND URBAN AREAS
AND AGE GROUP OF WOMEN: KEEMBE

AGE GROUP		Residence in Rural Areas in years		Residence in Urban Areas in Years		
		Less than 20 Years	20 Years or more	Never resided or resided for less than one year	1-9	10+
15-19	Parity	1.59	--	1.70	1.22	1.67
	Women	37	--	23	9	6
20-24	Parity	2.55	2.80	2.68	2.7	2.9
	Women	31	41	31	30	10
25-29	Parity	5.25	4.61	4.58	4.75	5.22
	Women	12	66	45	24	9
30-34	Parity	6.76	6.21	6.9	5.38	5.83
	Women	17	77	50	21	23
35-39	Parity	7.0	7.16	7.04	7.58	6.93
	Women	8	76	50	19	15
40+	Parity	6.95	8.16	8.40	8.59	6.96
	Women	21	152	87	39	47
Total	Parity	4.11	6.51	6.14	5.58	5.93
	Women	126	412	286	142	110
Mean age		27.4	36.4	34.23	32.71	35.86

PLACE OF BIRTH AND FERTILITY

In Lusaka most of mothers are migrants. Of the 2057 mothers, 80.9% came from other place in Zambia, 9.3% from outside Zambia, and only 9.8% were born in Lusaka. In Keembe, out of 536 women, 50.3% of women were migrants from other places in Zambia, 4.7% were born in other countries, and 45% were non-migrants born in Keembe. If we take the case of Lusaka women, women born outside Zambia had higher mean parity of 5.5 children followed by women born in other places in Zambia than women born in Lusaka (4.5 children). This was also true for Keembe, 7.0 children for women born outside Zambia, 6.2 children for women born in other places of Zambia, and 5.6 children for women born in Keembe. The observed fertility variation is due to age differences where migrants were older than non-migrants.

Table 17. MEAN PARITY BY PLACE OF BIRTH AND AGE GROUP
OF MOTHERS: LUSAKA, KEEMBE

AGE GROUP	L U S A K A			K E E M B E		
	In this Locality	Other Place in Zambia	Outside Zambia	In this Locality	Other Place in Zambia	Outside Zambia
10-19 Parity	1.41	1.44	1.38	1.52	1.56	3.0
Women	32	137	8	21	16	1
20-29 Parity	4.45	3.33	3.32	4.10	3.41	4.0
Women	126	732	59	68	73	8
30-39 Parity	6.48	6.78	6.17	6.42	6.80	9.2
Women	31	562	82	78	96	5
40+ Parity	7.42	8.51	7.98	7.18	8.93	8.64
Women	12	233	43	74	85	11
Total Parity	4.46	5.07	5.50	5.57	6.24	7.04
Women	201	1664	192	241	270	25
Mean age	26.20	30.40	33.30	33.50	34.30	35.40
Per cent of women	9.80	80.90	9.30	45.00	50.30	4.70
N = 2057	N = 2057			N = 536		

FERTILITY AND OCCUPATION

The gainful employment of women outside the home plays an important role in the reduction of fertility. Although a small proportion of women were engaged outside the home, as 80% of married women in Lusaka, and almost all women in Keembe are engaged in housework, the data does suggest of fertility variation by type of occupation. Considering women with work experience before marriage, white-collar workers had significantly lower mean parity than housewives, although the difference narrows when compared to women who had worked after marriage. The narrow fertility difference for those who had worked after marriage, may be that white collar workers might have born a large number of children before they started work. Considering women who had work after marriage, manual workers and traders had higher fertility than white-collar workers, and even more than housewives. The fact that white collar workers had lower fertility than manual workers and traders demonstrates the fact that it is not the employment outside the home that matters but more so is the employment of women in skilled professions and occupations.

Table 18. MEAN PARITY BY WORK EXPERIENCE BEFORE MARRIAGE OF EVER-MARRIED WOMEN

Type of work		Low Density	High Density	Squatter	Lusaka	Keembe
House work	Parity	5.21	5.53	4.87	5.10	5.92
	Women	161	542	1089	1792	529
White collar	Parity	4.56	3.32	2.67	3.92	-
	Women	97	81	12	190	-
Manual workers and traders	Parity	4.20	4.26	4.32	3.70	7.67
	Women	10	39	28	89	9
Total	Parity	4.94	5.18	4.83	4.93	5.95
	Women	2.68	662	1129	2071	538

Table 19. MEAN PARITY BY WORK EXPERIENCE AFTER MARRIAGE

Type of work		Low Density	High Density	Squatter	Lusaka	Keembe
House work	Parity	5.05	5.20	4.61	4.83	5.77
	Women	129	479	965	1573	511
White-collar	Parity	4.47	3.81	4.09	4.32	---
White-collar	Women	115	91	22	228	---
Manual workers and traders	Parity	5.60	6.92	6.43	6.56	5.59
	women	23	102	143	267	27
Total	parity	5.00	5.27	4.83	5.00	5.76
	women	267	672	1130	2068	538

Summary and Conclusion

This paper has demonstrated that fertility levels in Lusaka and Keembe are high. The crude birth rate of 47.0 per thousand and the total fertility rate of about seven to eight children suggests that fertility is still very high in Zambia. Estimated total fertility rates for Lusaka and Keembe ranged from 7 to 8 children. The number of children wanted by these women was 6.6 for Lusaka and 7.2 for Keembe and the mean number they recommended for each woman was 6.3 for Lusaka, and 8.2 for Keembe. This evidence of high fertility in Zambia was also demonstrated in the 1974 sample census and survey which reported a mean parity of 6.6 for women aged 45-49 years. The estimates were also similar to those observed in other African countries.

The age pattern of fertility shows that the majority of births occurred to women aged 20-39 years and that the peak of fertility was attained in the 25-29 year age group. Births to women aged 15-19 years were fewer than births to women aged 40-44 years suggesting that women continue to bear children until menopause and that increased schooling and higher incidence of singleness among girls was also reducing fertility in the 15-19 year age group. The decline in mean parity for Keembe in the 45-49 year age group was obviously due to recall lapse.

Analysis of fertility differentials by age at first marriage showed that early marriage was associated with relatively higher fertility. Thus Lusaka women aged 20-24 years who were married before 15 years of age had 2 more children than their counterparts who married later. The corresponding number for Keembe women was 3 children. In the absence of widespread use of effective birth regulation methods early marriage exposed women to a longer "risk" of childbearing.

The data also highlighted fertility differences by marital status. Widows in Lusaka had higher fertility than other women, and in Keembe their fertility was as high as the fertility of currently married women. The age difference between widows and other women partly explains this differential. As expected, never married women had the lowest fertility of all other groups studied although the mean parity of 2 children was quite considerable and suggested that never married women contributed significantly to fertility in Lusaka and Keembe. In fact 9 per cent of all births in Lusaka and 24 per cent of all births in Keembe were due to unmarried mothers. The Keembe evidence is rather striking but probably illustrates the breakdown of traditional marriage norms even in this rural area. An overwhelming percentage of fertility in Lusaka and Keembe was births to married women. Analysis of births in the last twelve months showed that most births (91.1 per cent in Lusaka and 76.4 per cent in Keembe) occurred to married women. The higher contribution of marriage to total fertility was supported by the Nuptiality Index which showed that 80% of total fertility for Lusaka and 1969 Zambia was due to marriage and that the contribution of marriage to fertility has been stable.

Our analysis of fertility differentials by education showed that the level of education was negatively related to the level of fertility. Thus illiterate women married earlier and bore about 3 more children than those with secondary forms 1-2 education. It would however appear that education only affects fertility if the level attained is secondary or higher. Thus women with primary education only had the same level of fertility as those who were illiterate. It was postulated that this might have been due to less adherence to traditional practices of postpartum sexual abstinence and breast-feeding. It would seem that these women acquired behaviour patterns that promoted better personal hygiene and improved nutrition which predispose them to less pregnancy wastage than their illiterate counterparts.

Although fertility differentials by ethnic group are not very clear, it would appear that the Bemba, Nyanja and Lenje in Lusaka had higher fertility than the Tonga and Lozi. Lower fertility was also recorded for the Tonga and Lozi in Keembe. This differential was due in part to a later age at marriage among these two tribes. The effect of educational and other differences need to be investigated.

Fertility in Lusaka did not differ significantly by religion although a higher fertility rate was recorded for protestants than catholics in Keembe. The data suggest that this difference was due to differences in age at first marriage. The mean age at marriage was 17.5 years for catholics and 16.4 years for protestants.

Differences in fertility by the type of work women did were more distinct in Lusaka where white collar workers had lower fertility than traders. This difference was, however due to educational differences between white collar workers and other groups.

Analysis of fertility by place of residence and number of years lived in urban and rural areas showed that Lusaka women who had lived in rural areas for over 20 years had fertility similar to women in Keembe who had never lived in urban areas. Women who had never lived in rural areas had a mean parity of 4.1 compared to 6.4 for Lusaka women who had lived for 20 years or more in rural areas. It would appear that the fertility variation by rural/urban residence was due to differences in the age of women.

It would appear from this analysis that national policy to influence fertility should focus attention on programmes related to raising the age at first marriage, encouraging girls to stay on at school and opening up more employment opportunities in the modern economic sector for the woman. Policy measures geared to giving women more education as an alternative to early marriage will yield high dividends in the long term.

The analysis in this paper highlighted that fertility is very high and it is the cause for the high rate of population growth. The estimated crude birth rate was 46 per 1000 for Lusaka, and 47 per 1000 for Keembe. The estimates of crude death rate were 11 per 1000 for Lusaka, and 15.3 per 1000 for Keembe as given in the paper on Mortality levels, patterns and differentials in Zambia". The implied rate of natural increase of the population were 3.5% per annum for Lusaka, and 3.2% for Keembe. Thus a national population programme should have as its first aim, the reduction of the very high level of fertility, which is the major cause of the population problem. In addition to the above suggested measures, a strong and a well co-ordinated national family planning programme should be pursued.

MORTALITY LEVELS, PATTERNS AND DIFFERENTIALS IN ZAMBIA

INTRODUCTION

In almost all developing countries, the general mortality level has been falling particularly after World War II as a result of efforts by governments and international bodies to effectively control hunger, disease and squalor, and thereby improve the general standards of living. Notwithstanding this decline, mortality levels are still high in many developing countries and because of total or partial absence, or indeed poor quality of demographic data, it is difficult to identify the levels, patterns, differentials and trends of mortality in these countries.

In Africa South of the Sahara, mortality levels are among the highest in the world. Crude death rates for countries in this region are about 20 per thousand population and infant mortality rates exceed 100 per thousand births. A peculiar feature of mortality in this region is the persistence of the high incidence of second year deaths. In fact, it has been estimated that about a third of all children born in countries of tropical Africa die before they attain the age of five. Deaths to children under five constitute a significant proportion of total deaths. This high level of infant and childhood mortality explains the relatively short average life span (about 50 years) estimated for sub-Saharan African countries. Attempts have been made in census and survey to classify mortality data by the socio-economic characteristics of the respondent - usually the mother in surveys focussing on infant and childhood mortality. However, the absence of reliable and complete vital registration data rules out significant improvements in the estimates of average life span and other mortality indices in those countries.

Estimates of mortality in Zambia derived from various censuses and surveys have shown that mortality is still very high in Zambia. The predominance of high infant and childhood mortality in this country has focussed the attention of policy makers on suitable policies for reducing these high rates. Thus, health planners and health personnel have been preoccupied with methods and programmes suitable for reducing current high levels of infant and childhood mortality. In the years following the attainment of independence, the adoption of a mass public health policy and the expansion of vaccination campaigns against the major killer diseases such as small pox, yellow fever, measles, and whooping cough, to name only a few, resulted in significant decreases in infant and childhood mortality. However, in recent years concern has been expressed as to whether mortality rates are actually declining in Zambia and other sub-Saharan African countries.

In Zambia, as in other developing countries, estimates of mortality levels especially at infant and early childhood still suffer from lack

of adequate demographic data. The registration of births and deaths is not complete because most of them are not reported. A number of reasons explain the low reporting of births and deaths in Zambia as in any other African country. Firstly, the vital registration system is relatively new in Zambia and the practice of registering African births and deaths was started in urban areas several years after independence.^{1/} Secondly, there are no registration offices in most localities to facilitate the development of the system among the population. Thirdly, even where a registration office exists, the persistence of traditional beliefs about births and deaths discourage people from declaring these events when they occur.

This paper analyses levels, patterns and differentials particularly of infant and early childhood mortality. As already mentioned there is no comprehensive vital registration system in Zambia capable of providing reliable vital rates. Indirect mortality estimation techniques, particularly those developed by Brass and Sullivan, have been employed to derive estimates of infant and childhood mortality as well as general level of mortality.

Source of Data

The data used for this analysis were obtained from retrospective and prospective information on mortality in the households covered in this survey. The retrospective data were obtained from information on deaths which occurred in the households during the twelve months preceding the survey. The prospective data were obtained from information on deaths which occurred in the household during the period covering all the four rounds. Related information on the availability and use of medical services was also collected.

The analysis necessarily focusses on the infant and childhood mortality and factors that are related to it. In this study, data on cause of death, number of rooms in household, water supply and toilet facilities are used to analyse variations in mortality by place of residence. Finally, data on maternal socio-economic characteristics are also used to explain differentials in infant and childhood mortality levels.

Mortality Levels

Cross tabulations based on data from the survey have been used to estimate infant and childhood mortality as well as general mortality rates. The evaluation of the data does not form part of this paper since it is discussed in another paper. Nevertheless, it cannot be over-emphasized that the data are subject to limitations characteristic of demographic sample surveys. These limitations are due to the fact that the events we deal with are not only rare but under reported as well. In this regard the estimates of mortality derived through indirect techniques may be well below the true mortality levels (see Appendix 1).

^{1/} Notes: The Registration of Births, Deaths and Marriages Act was amended in 1973 to extend coverage to Africans.

Table 1 presents mortality estimates derived from prospective data on reported deaths that occurred during the survey period. The age specific mortality rates in Table 1 show that Zambia is still characterized by high mortality. The general mortality level as indicated by the crude death rate is higher in rural than urban areas; 20.7 as against 6.5* per 1,000 population. The infant death rates were 120.3 and 36.5 for rural and urban areas respectively. The high crude death rate for Keembe implies an expectation of life at birth which ranges from 41-44 and 45-48 years for males and females respectively. It should be pointed out that this rather low expectation of life at birth contrasts sharply with what obtains in more developed countries where it is now well over 70 years. Whereas children born in the developed countries, all things being equal, can at least attain the Pillical Life Span of 'three score and ten years', Zambian children have a long way to go in order to achieve that objective.

Table 1: Estimates of mortality rates based on prospective data, Zambia.

Locality	<u>Age specific mortality rates per 100 population</u>					Crude death rate
	Under 1	1-4	5-9	10-14	15+	
Urban (Lusaka)	36.5	12.7	1.1	2.2	4.3	6.5
Rural (Keembe)	120.3	30.7	6.3	7.3	21.0	20.7

The proportion of deaths of children under 5 years out of total deaths is also used to indicate the high level of childhood mortality prevalent in Zambia. Table 2 presents proportions of deaths to children under 5 years in Zambia and two selected developed countries, Sweden and United Kingdom. For both urban and rural areas it is seen that childhood mortality comprises quite a sizeable proportion of total deaths; 62.5 as against 43.6 per cent in urban and rural areas respectively. The corresponding percentages were 1.5 and 2.3 per cent in Sweden and United Kingdom respectively. Whereas a significant proportion of deaths is concentrated in young ages in Zambia, the reverse is the case for Sweden and the United Kingdom.

* This rate is rather low and is probably affected by response errors.

Table 2: Proportions of deaths by age in Zambia and selected developed countries.

Age at death	Zambia, 1973		Sweden	United Kingdom*
	Urban (Lusaka)	Rural (Keembe)	1973	1973
Under 1	25.0	21.8	1.3	1.9
1-4	37.5	21.1	0.2	0.4
5-9	3.1	5.5	0.2	0.2
10 and over	34.4	50.9	93.3	97.5

*Source: Percentages for Sweden and United Kingdom (England and Wales) were based on figures from 1974 Demographic Yearbook, New York, 1975 pp. 596-600.

A major feature of high mortality countries is the relatively high incidence of pregnancy wastage. This usually is related to the problems of poor nutrition among pregnant women and the absence or inadequate ante-natal services. A review of the retrospective data on pregnancy histories presented in Table 3 shows a significant percentage of pregnancy wastage. 90 per cent of all pregnancies reported in Lusaka had ended in a livebirth, 6.7 per cent in miscarriages, 2.3 per cent in a still birth and 0.7 per cent in abortion. The corresponding figures for Keembe were 89, 6.0, 3.1 and 1.9 per cent respectively. Pregnancy wastage was due primarily to miscarriages which accounted for 63.7, and 54 per cent of all cases of pregnancy wastage in Lusaka and Keembe respectively. Still births also contributed significantly accounting for 24 per cent of all pregnancy wastage cases in Lusaka and 17.7 per cent in Keembe. The evidence presented here suggest that there was a slightly higher incidence of pregnancy wastage in Keembe than Lusaka. This was to be expected since women in Lusaka had better antenatal care facilities than their counterparts in rural Keembe. These data are, however, not accurate since they relate to differing periods in the past and may be subject to omission due to memory lapse or deliberate under-reporting.

Table 3: Percentage of pregnancies that did not end in live both in urban (Lusaka) and rural (Keembe) areas.

Locality	Pregnancies	Wastage	Per cent
Urban (Lusaka)	12074	1205	10.0
Rural (Keembe)	2163	340	11.0

Table 4 presents pregnancy outcome by place of residence for all pregnancies reported during the survey period. The higher rural than urban mortality, already noted above, is also evident in Table 4. Comparison of the standardized foetal death ratios shows that the rural figure is 3.6 per cent higher than the urban figure. This, however, is a conservative estimate since foetal deaths are more likely to have been under-reported in rural than urban area.

Table 4. Pregnancy outcome by place of residence

Locality	Live Birth	Foetal deaths	Foetal death ratio per 1000	Standardized foetal death ratio: per 1000
Urban (Lusaka)	216	16	74	73.4
Rural (Keembe)	15	1	66	76.1

Nevertheless they are very high when compared to ratios for Panama (67.4 for 1973), USA (12.7 for 1972), and Reunion (50.1 for 1969).^{2/}

Table 5 shows estimates of $2q_0$, $3q_0$ and $5q_0$ (probabilities of dying from birth to exact ages 2, 3 and 5) and implied mortality level, infant mortality rates, and expectation of life at birth, based on data on children ever born and surviving for each sex separately and for rural and urban areas. The Coale-Demeny North Model Life Tables were used. Contrary to expectation $q(a)$ values decrease with age and this may be attributed in part to omission and sampling errors. Due to this, the estimates of the level of mortality vary significantly, from an expectation of life at birth of 58.3 to 62.2 years for urban, and from 53.6 years to 59.2 years for rural. The level of mortality obtained by q_2 for urban (though it may be on the low side), and mortality level 14 for rural obtained by estimating q_2 for males were taken to approximate the levels of infant and childhood mortality. The results are presented in Table 6. For the urban population, the estimates yielded an infant mortality rate of 66.4 per 1000, expectation of life at birth of 56.3 years, and a crude death rate of 11 per 1000. The corresponding figures for Keembe were 104.3, 50.6, and 15.3 respectively. The estimated crude death rate was obtained by choosing a crude death rate that was consistent with the estimated level of mortality and crude birth rate. The foregoing results show the very high infant and childhood mortality in the rural areas, and suggest that children born in rural areas experienced much higher infant and childhood mortality than their counterparts in the urban areas.

^{2/} United Nations, 1974 Demographic Yearbook, New York, 1975.

Table 5: Estimates of probabilities of dying before exact ages 2, q(2), 3, q(3) and 5, q(5), and implied mortality level, infant mortality rate, and expectation of life at birth.

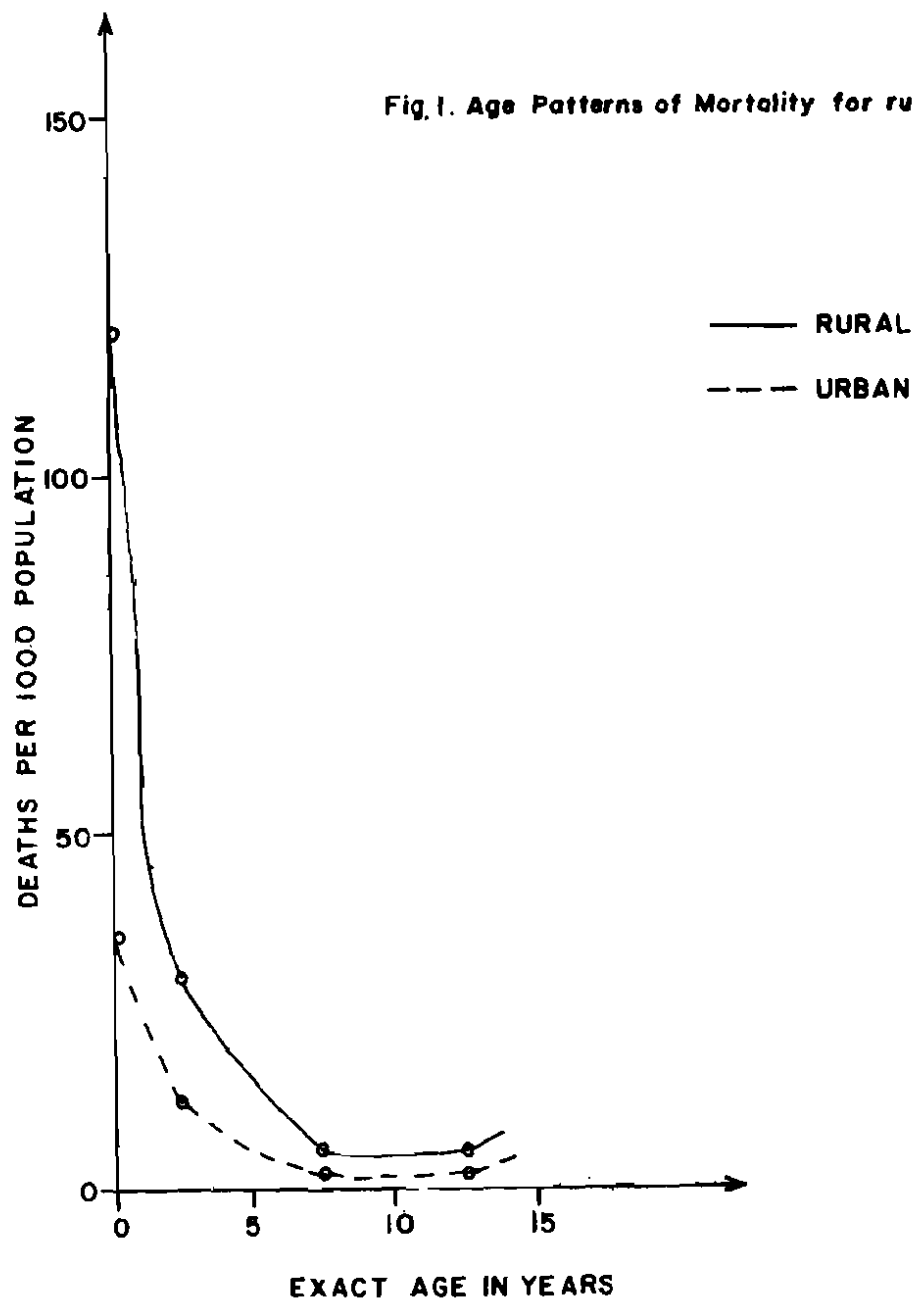
qi values	Urban (Lusaka)			
	Sex	Mortality level	Infant mortality rate, q_0	Expectation of life at birth, e_0
$q_2^2 = 0.032$ 0.079	Male	18.0	0.0600	56.3
	Female	17.2	0.0645	60.4
	Both sexes	17.6	0.0604	58.3
$q_3^3 = 0.032$ 0.065	Male	18.6	0.0626	60.3
	Female	19.0	0.0490	65.0
	Both sexes	18.8	0.0554	62.6
$q_5^5 = 0.094$ 0.079	Male	18.6	0.0626	60.20
	Female	18.6	0.0510	64.1
	Both sexes	18.6	0.0571	62.1

Rural (Keembe)				
$q_2^2 = 0.142$ 0.083	Male	13.9	0.1132	48.9
	Female	16.5	0.0707	55.7
	Both sexes	15.2	0.0925	53.6
$q_3^3 = 0.133$ 0.106	Male	15.4	0.0960	52.5
	Female	16.0	0.0731	57.5
	Both sexes	15.7	0.0851	54.9
$q_5^5 = 0.115$ 0.093	Male	17.4	0.0753	57.2
	Female	17.5	0.0615	61.2
	Both sexes	17.4	0.0684	59.1

Table 6. Selected estimates of levels of mortality

Locality	q_2^2	Infant Mortality rate (IMR)	Mortality level	Expectation of life at birth, e_0	Crude death rate per 1000
Urban (Lusaka)	0.061	66.4	17.6	58.3	11.0
Rural (Keembe)	0.132	104.3	14.0	53.6	15.3

Fig. 1. Age Patterns of Mortality for rural and urban areas.



Estimates of probabilities of dying by exact ages 2, 3 and 5 years based on Sullivan's multipliers are presented in Table 7 for the three urban residential areas. Although the male $q(a)$ values display an erratic pattern they suggest that male child mortality was lowest in high density areas while it was relatively high in both low density and squatter areas. On the other hand, female children in low density areas experienced much lower child mortality than their counterparts in squatter areas. High density areas occupied an intermediate position.

Table 7. Estimates of $q(2)$, $q(3)$ and $q(5)$ for the three urban residential areas of Lusaka

Locality	Male	q_2 Female	Male	q_3 Female	Male	q_5 Female
Low density	0.013	0.031	0.079	0.030	0.030	0.012
High density	0.038	0.046	0.067	0.052	0.092	0.056
Squatter	0.069	0.025	0.023	0.060	0.113	0.114
Total (Lusaka)	0.062	0.079	0.082	0.065	0.094	0.079

Mortality Pattern

Cantrelle 3/ has claimed that there is a standard pattern of tropical mortality whereby the probability of dying between age 1 and 5 years is often of a similar magnitude to that between birth and age 1. To some extent mortality data from West Africa seem to support Cantrelle's contention. However, the age pattern of mortality for persons under 15 years plotted in Figure 1 shows relatively higher mortality at infancy and a sharp drop before age ten. However, the difference in urban and rural mortality at these younger ages was most pronounced among children under five; although a difference persists after ten years of age.

Analysis of mortality by sex shows the universal pattern of higher male than female mortality for both urban and rural areas. Infant mortality rates were 68.3 and 64.9 per 1,000 live births for males and females respectively in the urban areas, the corresponding figures for the rural areas were 112.3 and 95.0. These figures also suggest that there is relatively larger sex mortality differential in areas of high mortality.

Mortality is influenced by many factors 4/ prominent among them are morbidity, environmental, nutritional and personal behaviour factors.

3/ Cantrelle, P. (1974) 'Is there a standard pattern of tropical mortality?' in Population in African Development, INCEP, Vol. 1, pp. 34-42.

4/ Pollard, J.M., 'Factors affecting mortality and the length of life', a paper presented at the Conference on Population in the Service of Mankind, 8-15 July, 1970, Vienna, Austria.

As far as weather and climate are concerned it has been shown that moderately hot conditions increase susceptibility to intestinal disease and that moderately cold conditions increase susceptibility to respiratory diseases. The survey period covered a year of different climatic conditions and a modest attempt is made to shed some light on seasonality of deaths. Table 3 presents seasonal pattern of mortality. It is seen that irrespective of age at death a greater proportion of deaths occurred during the wet season, December to March. For infants the wet and cold seasons caused the greatest havoc while for older ages the dry season accounted for greater proportion of deaths. It is also noted that a greater proportion of deaths among children aged 1-4 occurred during the wet season. This seasonal pattern of mortality has been observed in West Senegal and Western Gambia. 5/ In West Senegal mortality is excessively high in the rainy season while in Western Gambia it is higher during the dry season. It would seem that food shortages, especially during the early part of the wet season, may also aggravate conditions contributing to higher mortality.

Table 3: Distribution of Seasonal Pattern of Mortality by Age.

AGE	S E A S O N S						TOTAL	
	DRY		WET		COLD			
	(Aug-Nov)		(Dec-Mar)		(Apr-July)			
	No.	%	No.	%	No.	%	No.	%
0	5	17.2	13	46.4	10	35.7	28	100.0
1-4	11	33.3	15	45.5	7	21.2	33	100.0
5-9	2	40.0	2	40.0	1	20.0	5	100.0
10-14	3	50.0	2	33.3	1	16.7	6	100.0
15+	17	31.6	16	40.9	9	20.5	44	100.0
Total	38	32.8	50	43.1	28	24.1	116	100.0

Table 9 presents pattern of causes of death for the survey population. Although non-medical personnel collected the cause of death data and therefore the data may be far from accurate, as shown by the high percentage of unknown causes, they nevertheless, indicate, in a broad fashion, the magnitude of the health problems which public health administrators have to grapple with. Among infants, diseases due to high temperature accounted for 30.1 per cent of infant deaths while diarrhoea, vomiting, stomach pains, and dehydration were the second major killers. Other significant killers were coughing and measles. Among children aged 1-4 diseases due to high temperature and measles accounted for more than half of total deaths, and diarrhoea and coughing for about one fourth of all causes. It is interesting to note that a study of infant deaths in Lusaka and Central Provinces also found that "the group of respiratory, parasitic

5/ Pierre Cantrelle, IUSSI, 1974 op.cit. p. 41.

and infectious diseases accounted for 26 per cent of infant deaths".^{6/} It is clear from the above that infectious and parasitic diseases and malnutrition still dominate the mortality scene in infancy and childhood in Zambia. It may be pointed out that this cause of death pattern exhibited by the Zambian data is similar to what has been found in a number of developing countries.^{7/}

Table 9: Distribution of deaths by cause and age at death, for Lusaka and Keembe.

Cause of Death	Under 1 year		1-4		5 and over	
	No.	%	No.	%	No.	%
Coughing	52	8.2	43	5.1	1	0.3
High temperature	192	30.1	206	23.1	43	32.3
Accident or wound	7	1.1	14	1.6	21	16.0
Measles	32	5.0	171	20.1	15	11.5
Lack of milk	6	0.9	1	0.1	-	-
Smallpox	3	0.5	9	1.2	1	0.8
Diarrhoea, vomiting, stomach pains, dehydration	97	15.2	137	15.6	11	8.4
Swollen legs	12	1.9	31	4.2	4	3.1
Yellow fever	7	1.1	3	0.4	2	1.5
Eye sickness	1	0.2	2	0.3	-	-
Bilharzia, urinating blood	5	0.8	5	0.7	-	-
Not known	223	35.0	116	15.6	33	25.1
Total	637	100.0	741	100.0	131	100.0

Mortality Differentials

As already noted, the high general mortality in developing countries including Zambia is mainly due to relatively high infant and early childhood mortality. Needless to say that there is paucity of information on adult mortality. In the light of the above considerations analysis of mortality differentials will be mainly based on infant mortality. It is noteworthy that the level of infant and childhood mortality in a society is indicative of the level of development as well as standards of sanitary and health conditions.

^{6/} Banda K.A., "Levels, patterns and differentials of mortality in Zambia", p. 121 M.A. Thesis, University of Ghana 1977.

^{7/} Ministry of Health and W.O., Infant and early childhood mortality in relation to fertility patterns, p. 112, Freetown, 1980.

Estimates of life expectancy based on ${}_2q_0$ values for urban and rural areas are presented in Table 10. These estimates show that irrespective of sex, mortality is higher in rural than urban areas. Comparison of the results from the two surveys also shows that there has been a marked improvement in mortality conditions between the two survey periods by about 3 years for urban and 4 to 5 years for rural, and that females have benefited slightly more than males. For instance, residents in urban areas live about eight more years than their rural counterparts according to the current survey, and by about nine years according to the 1974 survey.

Table 10: Estimates of life expectancy e_0 based on q_2 of survey data and the results of 1974 sample census.

Locality	1974/79 ECA/CSO survey		1974 CSO sample census a/	
	Male	Female	Male	Female
Urban (Lusaka)	56.3	60.4	53.7	57.3
Rural (Keembe)	48.8	52.5	44.0	48.0

a/ Source: (a) Banda K.A., op.cit. p. 152

It should be mentioned that apart from the rural-urban mortality differential which has been observed in many developing countries, there are mortality differentials among different areas of the same city. Table 11 presents estimates of infant mortality rates for the three residential areas in Lusaka. It is important to note that these estimates are affected by varying degrees of omission and sampling errors and therefore they should be interpreted with great caution. Contrary to expectation the male infant mortality rates show higher mortality in low density than high density areas. The low density areas are inhabited predominantly by higher income groups, the domestic servants and other low income group people also live in these areas and it is expected that, all things being equal, infant mortality will be lower here than in the other two residential areas. It may well be that differential reporting of male deaths partly accounts for this phenomenon. It should be added that data on deaths in the last twelve months show higher infant death rate in high density than low density areas.

The female infant mortality rates, although too low to be true, show that children born in the low density areas experience much lower mortality than their counterparts in the other two residential areas. Mortality in the squatter areas is almost three times as high as it is in the low density areas. It must be mentioned that the implied life expectancies are rather on the high side and, as already noted, may be due to omission and sampling errors.

Table 11: Estimates of infant mortality rate and life expectancy based on 290 values for residential areas of Lusaka

Urban Residence	I M R		e ₀	
	Male	Female	Male	Female
Low density	33.0	27.6	55.3	71.5
High density	50.4	39.8	61.3	67.5
Squatter	34.1	73.0	55.1	56.8

In another study it was shown that where better housing facilities such as tap water, flush toilet, brick houses and electricity supply were available, mortality conditions were more favourable.^{8/} Many other studies have also shown that the level of mortality was related to such variables as food consumption patterns, fertility, migration, rate of population growth, family and household composition, health care, and housing conditions. Mortality is higher among Slum dwellers, in households where employment and working conditions are poor, where income levels are low or where individual security and status are not guaranteed.^{9/} Data presented in Table 12 suggest that these interrelationships also exist in the case of Zambia.

The application of the Sullivan mortality estimation techniques to survivorship data shows considerable omission errors which make the childhood mortality estimates very unreliable for comparison purposes. In the light of the above consideration, analysis will be based on proportion of dead children. These data which are presented in Table 13 show that in rural Keembe and Lusaka increasing level of education is associated with a consistent and significant fall in the level of mortality. Thus, 53.2 per cent of the dead children in Keembe had mothers who had never been to school, while the corresponding percentage for Lusaka was 43.4. It is interesting to note that the mortality differential between women with no education and those with secondary and higher education was more pronounced particularly in Keembe than in Lusaka. This suggests that, under high mortality conditions, a woman's educational attainment has relatively more effect on mortality than under lower mortality conditions. Similar findings have been reported for a wide range of countries.^{10/}

^{8/} Banda, op.cit., p. 153-156.

^{9/} United Nations, The mapping of interrelationships between population and development, New York, 1961.

^{10/} J.C. Caldwell and P. McDonald, Influential of maternal education on infant and child mortality; levels and causes, in proceedings of IUSSP General Conference, Manila, Philippines, December 1961 pp. 72-96.

Eduardo E. Arriaga, Direct estimates of infant mortality differentials from birth histories. Substantive findings session No. 6. paper No. 1. World Fertility Survey Conference, London 7-11 July, 1980.

Table 12 Interrelationships between mortality and selected housing facilities.

Residence	2 nd (1000 females)	Housing facilities (per cent of households)										
		Average rooms	Water Supply					Toilet Facilities				
			Tap	Well	River	Not Stated	Total	Flush	Pit	None	Not Stated	Total
Lusaka. Low density	31	6.19	100.0	-	-	1	193	100.0	-	-	1	193
High density	46	2.83	99.3	0.7	-	2	459	90.0	9.2	-	-	459
Squatter	51	2.83	99.2	0.8	-	5	722	-	92.1	7.9	-	722
Rural Keembe	122	2.64	4.6	92.3	3.1	-	330	-	49.2	50.1	-	330

Table 13: Proportion of children dead among children ever born by level of education of mother, Keembe and Lusaka, Zambia.

Level of education	Urban (Lusaka)		Rural (Keembe)	
	Number of dead children	Per cent	Number of dead children	Per cent
No education	451	43.4	249	56.2
Grade 1-4	366	33.0	142	33.2
Grade 5-7	206	18.6	34	7.9
Secondary and higher	56	5.0	3	0.7
Total	1109	100.0	428	100.0

Analysis of proportions of dead children among children ever born for the separate residential areas substantiates the inverse relationship between mortality and the level of maternal education already noted above. Table 14 presents deaths per 1,000 children ever born to women in the four survey areas. Although the rural pattern is erratic and may probably be due to very few children born to women with secondary and higher education, the general pattern of higher survivorship of children whose mothers had considerable education is evident. It is noted that children born to mothers without any formal education in high density areas experience a mortality rate which is 300 per cent above that of their counterparts whose mothers had secondary and higher education.

Table 14: Deaths per 1,000 children ever born to women in the four residential areas by level of maternal education.

Level of education	L U S A K A			Rural Keembe
	Low density	High density	Squatter	
No education	87.5	126.4	140.6	133.0
Grade 1-4	61.5	93.6	102.7	140.0
Grade 5-7	52.0	65.8	55.6	96.6
Secondary and higher	41.2	42.0	40.4	130.4
Total	52.2	57.2	131.2	130.5

Mortality Ratios			
Secondary and higher	100	100	100
Grade 5-7	126	157	113
Grade 1-4	149	235	206
No education	212	300	297

Table 15 shows deaths per 1,000 children ever born by marital status for women. Contrary to expectation children of never married women have higher survivorship than their counterparts born to widows, married, divorced and separated women. This pattern holds good irrespective of place of residence. It is also noted that children of married women experience lower mortality than children of widows, divorced and separated women. The data in Table 15 also suggest that in rural Keemba, children born to divorced and separated mothers are the most disadvantaged while in the urban areas the children of widows experience higher mortality than other children. In most cases, the loss of a husband results in a drastic decrease in the quality of life of the widow and her children. This takes a great toll on the morbidity and mortality of these children.

Table 15. Deaths per 1,000 children ever born to women by marital status and place of residence.

Marital Status	L D S A K A			Keemba Rural
	Low density	High density	Squatter	
Never married	90.9	25.3	52.5	50.0
Married	50.6	55.0	132.4	129.1
Divorced and separated	153.1	92.9	102.6	140.4
Widowed		95.2	151.1	144.7
Total	58.2	67.2	131.2	130.5

Summary and Conclusion

To recapitulate, Zambia is characterized by high level of mortality which is to a large extent due to relatively high infant and child mortality. The general mortality level as indicated by the crude death rate is higher in rural than urban areas; 15.3 as against 11.0 per 1,000 population. It may be mentioned that the estimated urban crude death rate is on the low side and this may be partly due to omission of events. The infant death rates were 104.3 and 65.4 for rural and urban areas respectively. Child mortality is also high in Zambia. 132 and 81 children out of 1,000 births will die before their second birthday in rural and urban areas respectively. The expectation of life at birth was estimated at 50.6 and 58.3 years for rural and urban areas, respectively. This rather low expectation of life at birth points to the gigantic health problems which health administrators and planners have to grapple with in order to reduce excessive mortality particularly in infancy and early childhood. It is worth mentioning that developed countries have already attained life expectancy of 70 years or more.

The Zambia data corroborate the almost universal finding of higher male than female mortality particularly in infancy and early childhood. Irrespective of sex children born in rural areas experience higher child mortality than their counterparts in the urban areas. Among the three urban residential areas children born to mothers in the squatter areas were the most disadvantaged. In general, children in low density areas have the highest survivorship.

It was shown that seasonal pattern of mortality exists in Zambia. A greater proportion of deaths occurred during the wet season, December to March. For infants the wet and cold seasons took a heavy toll while for older ages the dry season accounted for greater proportions of deaths. It was also noted that greater proportion of deaths among children aged 1-4 occurred during the wet season.

The structure of causes of death in Zambia is quite different from what obtains in most developing countries. Infectious and parasitic diseases as well as malnutrition still influence the mortality scene in infancy and early childhood. This pattern of causes of death underscores the need for a shift of emphasis from curative to preventive medicine by health administrators and planners. Innoculation and vaccination against childhood diseases such as measles, whooping cough, tetanus and other diseases as well as prophylactic programmes against malaria and worms will undoubtedly yield dividends in the short-term and long run. Nutritional and sanitation education programmes among women will also contribute to combating factors sustaining high mortality.

It was noted that there was rural-urban mortality differential in Zambia. Residence in a rural area per se is not conducive to high mortality. It is the lack of health facilities and social amenities such as good housing, good drinking water and adequate sewage disposal system which predispose people in the rural area to relatively high mortality. The availability of many health establishments in Lusaka in addition to the University Teaching Hospital (UTH) complex make it potentially easier for urban dwellers to get quick and reliable medical care. How much care urban dwellers actually get is dependant on the availability of easy transportation and the educational and economic background of each individual family.

There are mortality differentials according to level of education and marital status of women. It was shown that increasing educational attainment is associated with consistent and significant fall in mortality. While 53.2 per cent of dead children in Keembe had mothers who had never been to school, the percentage was 0.7 for children whose mothers had secondary and higher education. The pattern was the same for Luanshya, 43.4 and 5.0 per cent were children of mothers with no formal education and those with secondary and higher education respectively. The high infant and child mortality among non-educated women raises the question about the accessibility of this social group to public health facilities and medicines. Children born to never married women have higher survivorship than their counterparts born to widows, married, divorced and separated women.

women. Children born to married women also experienced lower mortality than children of widows, divorced and separated women. However, single women have fewer children on average.

It should be noted that education is not the only factor related to mortality. Nutrition, housing, other economic characteristics of the family, cultural practices related food taboo and perceptions of cause of death and sanitation including quality of water have an impact on mortality. However, education is related to level of income, type of occupation, housing, and other factors which in turn, are related to mortality. The fact that a woman has attended school will not automatically reduce the mortality of her children. Nevertheless, it is more likely that those women who have achieved some education also possess several characteristics which would help in reducing infant and early childhood mortality. It is worth mentioning that education by itself would provide mothers with the ability to practice some preventive medicine and to recognize important symptoms and lead them to seek prompt medical care for their children.

It seems that the possibility of modifying other factors affecting mortality - living standards (particularly nutrition) and public health facilities in the short run is not as great as the possibility of increasing the level of health education by informing women about particular serious diseases, symptoms and hygienic practices through country wide training programmes.

VI. Conclusion

This study demonstrates that nearly all urban and rural women in Zambia breastfeed their children from birth and do so for relatively long periods. They are as likely to breastfeed their first children as they are to breastfeed subsequent ones. The data suggest that the duration of breastfeeding was the same irrespective of birth order. The mean duration of breastfeeding was, however, higher in Keembe than Lusaka. Thus the duration of breastfeeding the first child, the child born before the last and the most recent child was 17 months in Keembe compared to about 15 months for Lusaka.

Since a quarter of these women reported using contraceptives, the length of the birth interval for some of them was influenced by contraceptive use. The birth interval recommended by Lusaka women (24.6 months) was longer than that by Keembe women (20 months) although both were shorter than expected if allowance is made for a gestation period of about ten months.

The evidence from this study suggests that the major determinant of the birth interval among Zambian women was the duration of breastfeeding and not the duration of postpartum sexual abstinence as has been suggested by some studies in Nigeria and elsewhere. The mean duration of postpartum sexual abstinence was relatively short; 6 months for Lusaka and 5 months for Keembe. The expected duration of breastfeeding as recommended by women covered in the survey was, however, much longer than the observed duration. Although breastfeeding is universal practice in Lusaka and Keembe, its intensity varied by place of residence. Keembe women breastfed more intensively and for longer duration than Lusaka women.

This urban-rural difference in breastfeeding was explained to some extent by differences in timing the introduction of other milk and supplementary foods during breastfeeding. While about a fifth of all Lusaka women introduced other milk in the first six months of breastfeeding only 1.5 per cent Keembe women gave their babies other milk during the same period. Women from both areas, however, introduced other foods quite early during the first six months. It was however noted that more Lusaka than Keembe women breastfed on demand. This was probably due to the fact that rural women spent daily more time away in the farms than their counterparts in urban where the majority of whom were not engaged in regular employment. On the whole few women restricted the number of times daily they breastfed during the first three months of life.

More than half the number of women interviewed started feeding their children on the regular family meal before the children were one year old. During the weaning period, children were fed on a predominantly carbohydrates diet although 37.7 per cent of Lusaka and 31.4 per cent of Keembe women gave their children a mixed diet of cereals, vegetable, fruits and dairy products.

APPENDIX I

STATISTICAL TABLES

The follow-up population by sex and age for rural and urban samples:

	U R B A N (Lusaka)		R U R A L (Keembe)	
	Male	Female	Male	Female
0-4	1,438	1,354	314	340
5-9	1,216	1,287	334	299
10-14	918	920	270	281
15-19	595	757	187	163
20-24	436	667	95	103
25-29	399	483	60	91
30-34	383	400	55	102
35-39	376	295	53	91
40-44	307	172	47	81
45-49	227	107	57	102
50-54	150	36	68	42
55-59	77	13	45	16
60+	49	22	81	46
Total	6,571	6,513	1,666	1,757

Retrospective data on number of children ever born and children dead by age of women.

Age	U R B A N (Lusaka)			R U R A L (Keembe)		
	Women	Children		Women	Children	
		Ever-born	Dead		Ever-born	Dead
15-19	757	279	32	163	59	3
20-24	667	1,276	130	103	194	24
25-29	483	1,960	195	91	386	52
30-34	400	2,348	262	102	605	71
35-39	295	2,194	277	91	615	63
40-44	172	1,415	213	81	611	75
45-49	107	1,018	-	102	791	140
Total	2,881	10,490	1,109	733	3,261	428

APPENDIX I

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Prospective number of deaths reported during the survey.

Round	U R B A N (Lusaka)					R U R A L (Keembe)				
	Under 1 year	1-4	5-9	10-14	15+	Under 1 year	1-4	5-9	10-14	15+
Second	2	10	1	2	3	3	1	1	1	14
Third	10	3	1	1	10	3	7	1	1	2
Fourth	4	3	-	-	6	6	4	1	1	3
Total	16	21	2	3	19	12	12	3	3	25

Retrospective number of deaths 12 months proceeding the survey.

Locality		Under 1 year	1-4	5+	10+	Total
Lusaka	Low	-	-	3	2	5
	High	3	3	15	1	22
	Quatter	3	7	11	-	29
Rural Keembe		3	6	12	3	24
Total		9	16	41	16	80

Number of women by maternal education, number of children ever-born and children dead.

	LOCALITY											
	L O W			H I G H			S O U A T T E R			R U R A L		
	Women	Children Ever- born	Dead	Women	Children Ever- born	Dead	Women	Children Ever- born	Dead	Women	Children Ever- born	Dead
No education	19	10	7	175	936	112	539	2,460	362	399	1,272	243
Grade 1-4	24	139	3	242	1,156	117	452	1,009	241	202	1,014	142
Grade 5-7	106	476	25	316	1,041	39	461	1,051	111	127	352	34
Form 1-2	85	299	10	100	261	11	54	106	6	4	21	2
Form 3-5	86	214	12	100	167	5	31	43	2	1	2	1
Primary and Trade	-	-	-	3	19	2	1	1	-	-	-	-
Teacher Training	4	10	1	2	7	-	-	-	-	-	-	-
Post Secondary	40	103	4	30	70	4	-	-	-	-	-	-
University	9	22	-	-	-	-	-	-	-	-	-	-
Total	373	1,342	67	968	3,646	240	1,538	5,502	727	733	3,261	420

159 (c)

Marital status of women by number of children ever-born and dead.

Marital status	L O C A L I T Y											
	L O U			H I G H			S Q U A T T E R			R U R A L		
	Women	Children ever- born	Dead	Women	Children ever- born	Dead	Women	Children ever- born	Dead	Women	Children ever- born	Dead
Never married	20	33	3	63	79	2	35	42	3	36	59	3
Married	343	1,205	62	863	3,137	233	1,429	5,859	670	578	2,706	352
Separated	2	4	-	8	45	3	11	43	5	6	23	2
Divorced	2	9	2	63	101	10	39	152	15	79	309	40
Widowed	1	11	-	34	147	14	26	130	21	34	159	23
Total	373	1,372	67	1,036	3,646	320	1,540	6,241	722	733	3,261	428

Knowledge of long-term effects of postpartum sexual relations was universal and a majority of women indicated that couples strictly adhered to these practices. The evidence however suggests shorter expected durations of postpartum abstinence than have been reported for the Yoruba of Nigeria, the Zulu of South Africa or the Guere of Ivory Coast. Neither the expected duration nor the actual experienced duration of postpartum sexual abstinence reported by these women suggests that this practice could contribute to lengthening the birth interval in urban and rural areas in Zambia.

The baby's health and well-being is paramount in determining the duration of breastfeeding and the practice of postpartum abstinence although more urban than rural women abstain from sex to avoid public ridicule. It was rather surprising that the fear of getting pregnant was not given as a major reason for practising sexual abstinence after childbirth. Consequently, 63.3 percent Lusaka and 66.4 percent Keembe women thought couples should have sexual relations during breastfeeding. Over half of the Keembe women and a third of Lusaka women who approved of the practice thought it would have no effect on the child. Over a third of those who approved of it in Lusaka expressed the fear that husbands would go out with other women if they objected to the practice.

It would therefore appear that any reductions in the duration of breastfeeding in the process of social change in Zambia would lead to significant reductions in birth intervals unless some other methods are used to prolong it. Since closely spaced births tend to be associated with higher maternal and child mortality and morbidity, reductions in the birth interval under existing living conditions in Zambia would aggravate the mortality situation. While shorter birth intervals may contribute to higher child death, it should also be noted that a short interval between births can sometimes be the result rather than the cause of child mortality. The findings of this analysis emphasize the need for more detailed investigations on the impact of varying intervals between births and child and maternal morbidity and mortality. The importance of such studies cannot be overemphasized since higher parity tends to be associated with shorter mean birth intervals and because effects attributed to shorter intervals are probably reflections of the biological risks of high parity or other social negative influences of large families.

Body Weight, Height and Nutrition of Zambian Children
Under Five Years of Age

I. THEORETICAL BACKGROUND

1. If in the world today, insufficient attention has been given to the problem of malnutrition with all its devastating consequences, it is partly because the manifestation of the phenomenon are clearly unobtrusive and stares no one in the face directly. Whereas it is possible to identify the physical sufferings of persons plagued by communicable, infectious and contagious diseases, malnutrition, at least, in its non-severe form, eludes the attention of the ordinary man. In terms of global concern, it is often a localised problem that does not afflict everyone as would an epidemic of contagious or infectious diseases which within any given physical environment knows neither class nor social boundaries.

In contemporary African experience, attention has been attracted rightly to the problem more in areas experiencing severe natural and/or man-made calamities such as drought and mass movement of refugees than in situations where such disruptions have not occurred. Yet, it is undeniable that the magnitude of the malnutrition problems in the latter undisturbed areas is dismally large and wide-spread. Even in such so called normal conditions, it is known that a significant proportion of child mortality can be explained directly or indirectly by the effect of malnutrition. In many developing countries, malnutrition not only contributes directly and heavily to infant and child deaths but also aggravates the fatality rates of otherwise minor diseases of infant and childhood in particular.

The impact of malnutrition on the growing infant or child is not just physical but also mental. The physical retardation in growth is often matched by an often ill-appreciated degree of mental impairments of the growing child both at the fetal period and infancy. In spite of the debate on the permanence and irreversibility of the effect of malnutrition, it is now widely accepted that it affects both mental as well as emotional and motivational development of the child. The ability to learn and concentrate is weakened because the malnourished child is both mentally and physically fatigued and often falls prey to malnutrition-related illness. Physically, the level and quality of nutrition are related to the way a child uses his or her genetic or hereditary capacity to obtain a given height and body size.

Thus in the context of past experience, the problem of nutrition for the African child has both a qualitative and quantitative dimension. Insufficient quantity of food means that the energy requirements of the child are not being met. Similarly, inadequate supply of qualitative nutrients needed for growth, body repair and lubrication is consequential for the overall health and development of the child. Thus, the gravest and commonest nutritional deficiencies among African children result from protein and calorie malnutrition associated with insufficient intake of food and nutrients. In very severe conditions as the one in drought-stricken areas, afflicted children suffer from either MARASMUS which is a pronounced shortage of both calories and protein, or KWASHIORKOR which is mainly a protein deficiency. In the case of marasmus, the child suffers from gross physical retardation; he or she is shrunken and shrivelled, while in that of kwashiorkor, the child sports a bloated belly and a conspicuously glaring stare or fixed gaze.

The present analysis takes note of the impact of vitamin A deficiency and iron-deficiency on the health of children. Iron-deficiency leads to anaemia which is linked with sickness, lethargy and fatigue. Pregnant as well as lactating mothers in Africa suffer from nutritional anaemia which contributed to the heightening of maternal mortality. Anaemic mothers also produce less healthy children and hence they have a high incidence of stillbirths and premature births.

Anaemia is also common among older children in Africa. In Zambia, 87 percent of children of pre-school age were anaemic; in Tanzania, the figure was 88 percent. ^{1/} Sub-normal levels of vitamin A, also commonly encountered in Africa, affects growth, skin condition, and sight. Indeed, an acute shortage of vitamin A can cause blindness and other unhealthy visual conditions.

The magnitude and insalutary implications of malnutrition should pose a challenge to all African governments especially in relation to its impact on the pace and success of national development plans. It is necessary to bear in mind that expenditures on health and nutrition are not just consumption items since the health and nutritional status of a nation affects social and economic growth. Investment in human capital (education, health, nutrition, housing and other social welfare services) contributes significantly to economic growth by enabling the person to develop his skill and increase productivity.

The debility of a substantial proportion of the labour force reduces productivity. An increased level of productivity would increase earning capacity and living standards for the worker and his household. In the particular case of children, improved nutrition contributes to reducing school drop-out rates and absenteeism, and therefore improves their capacity to learn and retain knowledge and skills which could be applied later in life to developmental problems at reduced educational costs. Similarly, a nutrition programme can lead to savings in medical costs through reduced demand for curative medical services. A government programme for children should go beyond caring for older children especially those aged 6 months to 3 years to include adequate nutrition for mothers especially in the last trimestre of pregnancy, a period which is considered critical for the development of the foetus. This will ensure that intra-uterine and early childhood nutritional care is provided.

In order for governments of the region to adequately tackle the problem of nutrition, the political as well as economic will to do so has to be generated and priority programmes developed. Such programmes have to contend with increasing the production not just of staple foods but also those that give quality proteins, vitamins and minerals. Food processing and distribution problems have to be resolved. Trained personnel to operate programmes and create awareness of the importance of nutrition in national

^{1/} D.B. Jelliffe, Infant Nutrition in the Subtropics and Tropics, WHO Monograph Series No. 29, Geneva, 1968, p. 158.

development should be made available. The relevance of socio-cultural factors related to food practices and preferences has to be considered in implementing any nutrition programme since such factors can be consequential for the acceptance of innovations.

II. THE SURVEY METHODOLOGY AND ANALYTICAL BACKGROUND

As part of the general survey on fertility, the interrelationships among infant and childhood mortality, socio-economic factors and fertility, a study involving the measurement of weights, heights and arm circumference of children aged 1-5 years was undertaken. Measurements were recorded on a specially designed form for approximately 700 children representing a 10 percent subsample of households.

Unlike the study of other variables which was carried out on a longitudinal basis, the anthropometric study was purely cross-sectional. Although it is appreciated that a combination of the two perspectives should provide a richer description of the growth processes of children, the use of the cross-sectional method was thought to enhance the study of variations and permit the accurate placement of each child at a point in time in relation to other children. This does not of course over-look the limitations of the technique, principal among which is that while the mean value of weight or height or arm circumference provides the best estimate for the group, it does not really describe the actual growth of the individual child. This is because of sampling differences from one age group to another. Furthermore, children attain their growth spurt at different times. In particular during infancy and up to about 4 years, growth of the long bones of the extremities is quite erratic; it only stabilises during mid-childhood (4-10 in girls and 4-12 in boys) because somatic growth and physiological processes become stable. ^{1/} Thus, cross-sectional data especially during the growing period by age are less valuable than longitudinal data since it is the velocity of growth which may be affected by nutrition. However, the advantage of using the method for comparing different groups with common background stands.

The data on weight was obtained by weighing each child using a simple portable bathroom scale on which children were made to stand upright. The observed weight was then recorded by the enumerator on the schedule designed for the investigation. All enumerators were uniformly trained on how to measure and record, and use and adjust, the scale to the zero point before weighing in order to minimise observer and recording errors and biases. Since the sample of children was small, the measurements were tallied and processed manually to obtain the tables, graphs and charts for the present analysis.

^{1/} M.M. Maresh, "Linear growth of long bones of extremities from infancy through adolescence"., American Journal of Disabled Child, 89: 725-742, June 1955.

M.M. Maresh, "Variations in patterns of Linear growth and skeletal maturation", Journal of American Physio-Therapy Association, 44 (10), October 1964.

Height was measured with the child standing upright with his/her back against the wall. A ruler placed flat on the child's head was used to mark-off the corresponding height on the wall and then measured with a tape measure and recorded against the name of the child on the schedule. Here again marked variability in observer and recording errors and biases were kept to a minimum by giving the same level and type of group training to enumerators.

Tailors' tape measures made of cloth were also used to measure arm circumference. Enumerators were instructed to apply the tape gently and not so tight but firmly around the left arm half-way between the shoulder and the tip of the elbow. The measured left arm was kept straight and left to hang freely down by the side of the child. The measurements were recorded on the schedule against the name of the child. A manual tally of all the records was made and used to construct arm-circumference-for-age charts for each of the survey locations.

The schedule for the investigation also collected information on the general health condition of each child in the subsample study in which 705 children were actually observed. Of these 92 were from the urban low density stratum, 202 from the urban high density stratum, 307 from the urban squatter areas, and 104 from the rural stratum. The schedule also had space for recording the name, age and survey serial number of the mothers of the children in the sub-sample.

III. ANTHROPOMETRIC FINDINGS: BODY WEIGHT AND HEIGHT

Table 1 presents separately by age observed and standardized measures of height and weight for each of the four sample strata in the survey. The ages of the children were recorded in the survey as their respective ages last birthday. Because of the sample size, analysis is confined to both sexes together.

It can be seen from Table 1 and Fig. 1 that there is an approximately linear increase in mean height and mean weight as age of children increases. Both observed and standardized averages for the four areas support this observation, although it has to be interpreted cautiously in view of the rather small sample size. Even when the tabulations were prepared separately for male and female children, the same tendency for height and weight to increase as age increases was observed. It is apparent that the linearity of the relationship could have been more direct but for the smallness of the sample size.

Table 2 shows mean height and weight for males and females in the four survey locations. Children in urban areas were both taller and heavier than those in the rural areas and those in high density areas were taller and heavier than their counterparts in low density and squatter areas. Female children in low density areas were however heavier and taller than those in high density and squatter areas. Children in the rural area were shorter and lighter and were also more heterogeneously spread around the mean weight and height than urban children. As exemplified in Table 2, the standard deviations and the coefficients of variability for both sexes and the total population confirm this.

Mean observed (O) and Standardized (S) Height and Weight of children by age

AGE (in months)	Height (in MM)										Weight (in KG)									
	U R B A N					RURAL					U R B A N					RURAL				
	Low Density		High Density		Squatter		Total				Low Density		High Density		Squatter		Total			
	O	S	O	S	O	S	O	S	O	S ^{1/}	O	S	O	S	O	S	O	S	O	S
10 - 14	773	726	722	731	716	724	739	723	591	635	9.0	8.4	3.3	8.4	8.9	9.0	8.7	8.7	8.0	9.5
15 - 19	754	741	744	736	738	738	743	738	705	737	11.3	11.1	9.2	9.1	9.3	9.4	9.9	9.4	8.9	9.2
20 - 24	821	799	805	805	797	805	808	803	700	737	11.0	10.7	10.6	10.6	10.3	10.4	10.6	10.5	10.0	11.4
25 - 29	920	821	824	817	812	819	852	818	844	851	13.0	11.6	11.5	11.4	11.5	11.6	12.0	11.5	11.4	11.1
30 - 34	837	856	865	851	833	854	862	853	679	749	11.4	11.0	12.8	12.6	11.7	12.0	12.0	11.9	9.4	13.2
35 - 39	938	896	891	898	879	893	903	895	884	927	13.3	12.7	13.2	13.3	12.9	13.1	13.1	13.1	12.4	12.5
40 - 44	948	923	953	932	912	932	938	930	890	1031	14.1	13.8	13.5	13.3	13.8	14.1	13.8	13.8	11.7	12.2
45 - 49	1005	972	985	985	957	977	982	974	917	977	15.4	14.9	15.0	15.0	14.3	14.6	14.9	14.7	13.7	14.4
50 - 54	1026	993	1010	992	969	994	1002	991	903	1046	15.5	15.0	16.5	16.2	15.7	16.1	15.9	15.8	12.6	13.3
55 - 59	1003	1008	1031	1010	994	1008	1011	1009	999	971	14.1	14.1	14.7	14.4	14.3	14.5	14.4	14.4	15.0	15.1

^{1/} Rural data was standardized differently on the basis of the combined sub-samples for rural and urban areas for each age group.

WEIGHTS AND HEIGHTS BY AGE FOR CHILDREN UNDER 5 YEARS OF AGE IN ZAMBIA

FIG. 3

URBAN HIGH DENSITY

URBAN LOW DENSITY

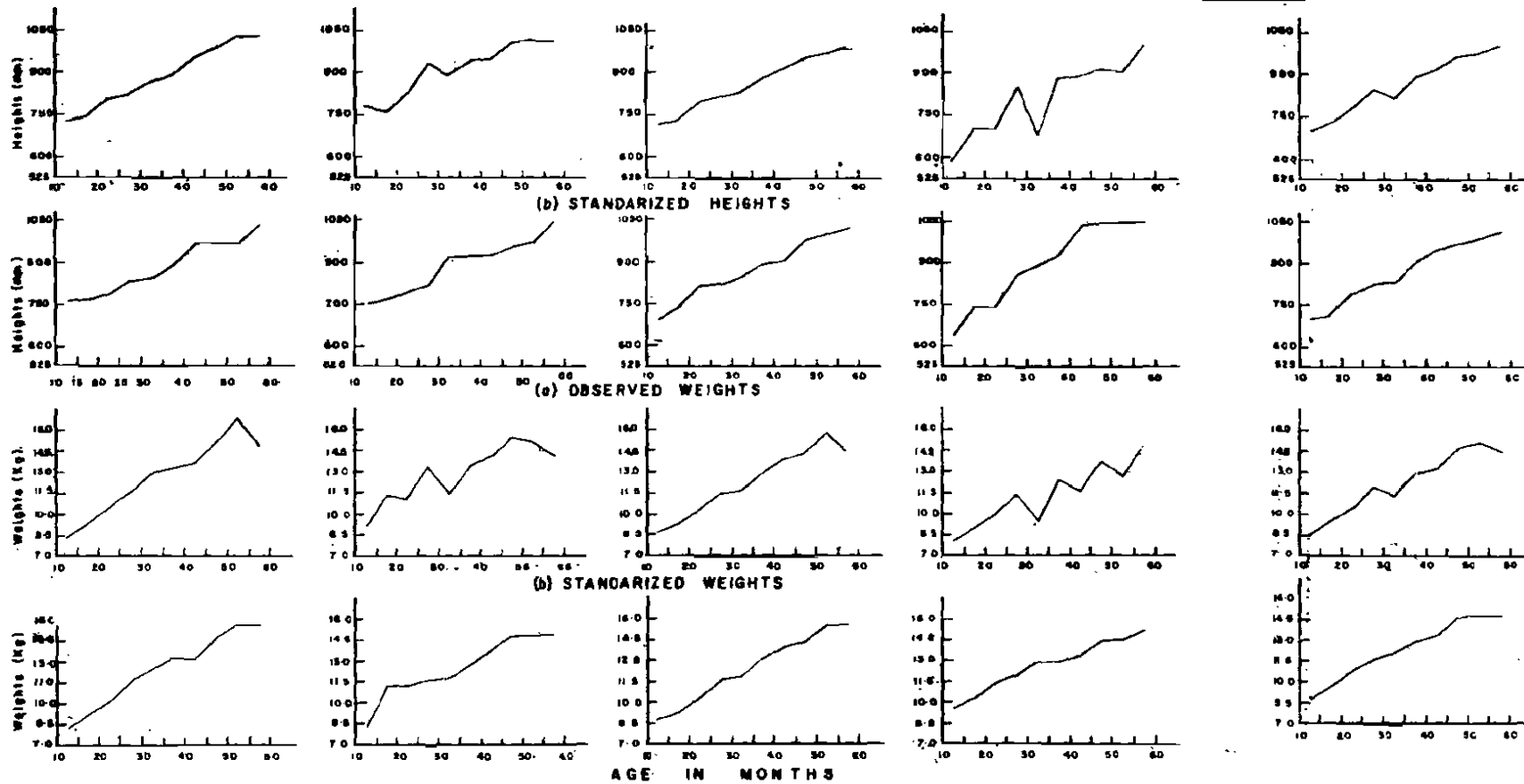
URBAN SQUATTER

RURAL

TOTAL

(a) OBSERVED HEIGHTS

SCALE
1. 50 = 10 months (age)
1. 50 = 10 mm (height)
1. 50 = 0.5 kg (weight)



Besides, the greater homogeneity and compactness of the distribution of children in the urban area shows a limited degree of variability when the standard deviations or coefficients of variation for low density, high density and squatter areas are considered. Similarly, no marked degree of variation was found between male and female children in terms of their respective distribution around the mean weight and height. Irrespective of the sex of the children, it is also clear from Table 2 that the coefficients of variability relative to height and weight show that at the lower ages studied (i.e. under five years) children tended to be more heterogeneous in weight than in height. Apparently, the distribution of height was more compact than those of weight among young children aged 1-4 years.

IV. GROWTH RETARDATION AND BODY WEIGHT

200 Growth of children and increase of their body weight are a function of their level and quality of nutrition. A child living on insufficient and low quality food does not gain weight and grows as steadily as he should for his age. Such a child is likely to grow up physically stunted and mentally less talented than he should otherwise be. He is more likely to get ill because of low susceptibility to diseases.

In the present study, a relative scale has been used to identify children who were underweight for their age in their respective survey environment. In the first instance, children were classified in such a way as to be able to infer the extent of what is commonly referred to as "first degree malnutrition". This was done by means of a measure of growth retardation which included all children within each sample stratum whose weights were less than 90 per cent of the mean weight for the age group taken as a percentage of the number of children in each age group.

Table 3 presents the results of the analysis of growth retardation. Over one-fifth (21 per cent) of children in the low density areas of Lusaka city were affected by "first degree malnutrition". The corresponding figures for the high density areas, squatter areas and the rural areas were 25 per cent, 28 per cent and 30 per cent respectively. This suggests the existence of an inverse relationship between socio-economic status and the incidence of growth retardation; the poorer areas recorded higher levels of "first degree malnutrition". Another interesting relationship in Table 3 is brought out by the standardised percentage of children whose weight were less than 90 per cent of the mean weight for the age group. The standardised 1/ values show that the percentage with retarded growth declines with increasing age up to the age group 50-54 months in the four survey locations. Figure 2 also illustrates the inverse relationship between growth retardation and age of children in all the four locations.

1/ The formulation for the standardization of the percentages for variations in the size of age groups is:

$$P_s = \frac{\bar{P}}{P} \times \frac{P_i}{I}$$

where P_s = standardized percentage

\bar{P} = total percentage observed for each stratum

P_i = age-specific percentage for urban and rural strata combined

P = total percentage for urban and rural strata.

Table 2: Mean height, weight, standard deviation and coefficient of variability for males and females in survey locations

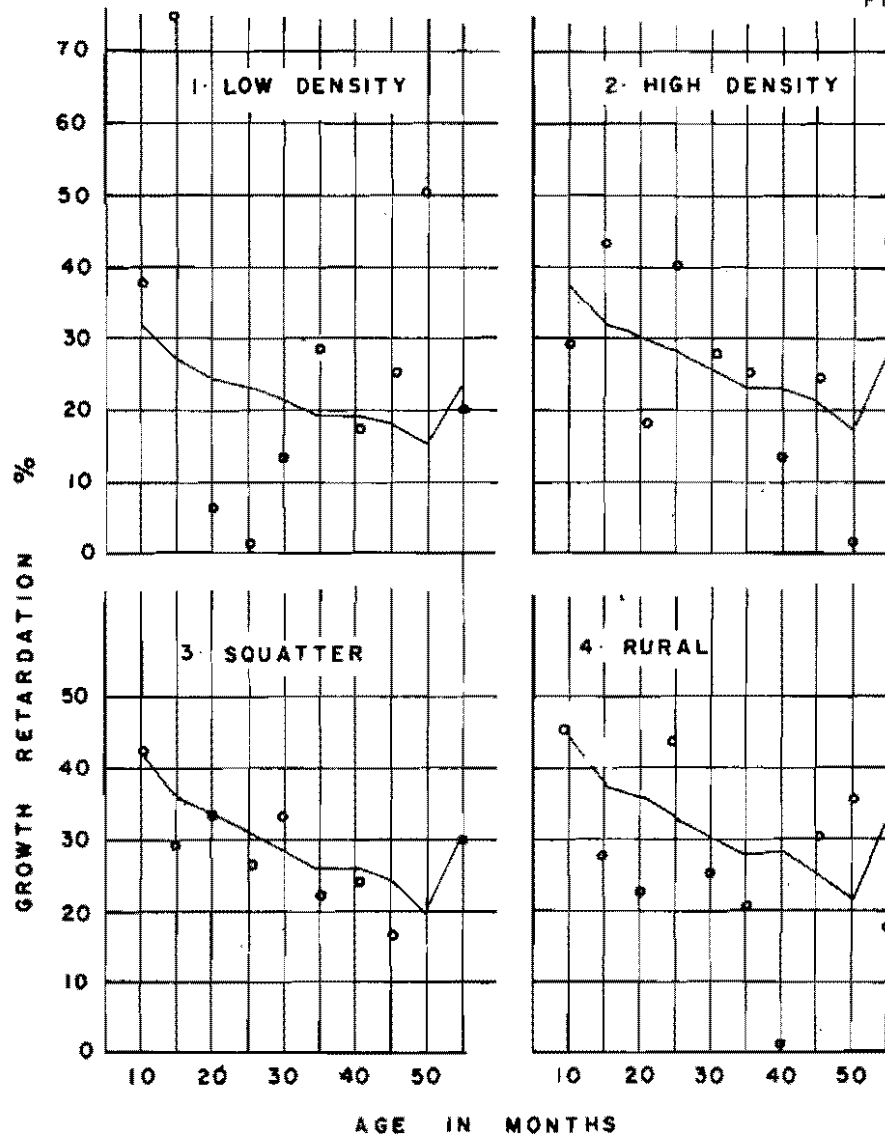
Location	M A L E			F E M A L E			T O T A L		
	Mean	Stan- dard devia- tion	Coef- ficient of varia- bility (%)	Mean	Stan- dard devia- tion	Coef- ficient of varia- bility (%)	Mean	Stan- dard devia- tion	Coef- ficient of varia- bility (%)
(A) HEIGHT (in mm)									
URBAN									
Low density	813	80	8.8	903	103	11.4	908	90	9.9
High density	891	103	11.6	878	107	12.2	885	106	12.0
Squatter	860	94	10.9	860	95	11.0	860	93	10.8
RURAL	801	143	17.9	822	113	13.7	811	125	15.4
(B) WEIGHT (in kg.)									
URBAN									
Low density	12.6	1.9	15.1	13.0	2.00	15.4	12.3	1.9	14.8
High density	12.8	2.5	19.5	12.3	2.8	22.8	12.6	2.5	19.8
Squatter	12.4	2.1	16.9	12.1	2.3	19.0	12.3	2.3	18.7
RURAL	11.6	2.2	19.0	10.9	2.3	21.1	11.3	1.9	16.8

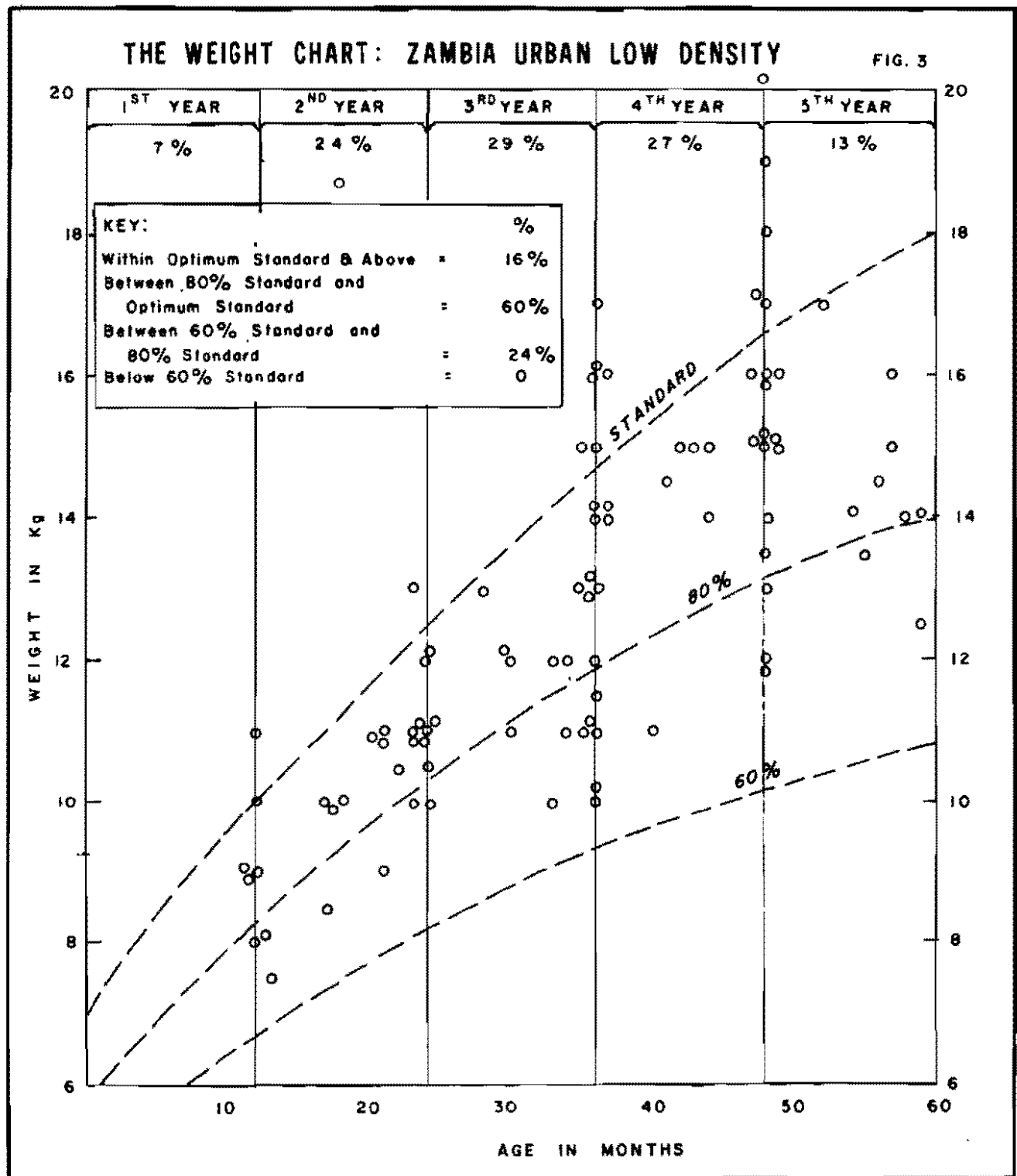
Table 3: Observed (Obs.) and Standardized (Std.) percentages of children with first degree malnutrition of growth retardation

Age	Urban Strata						Rural		Total
	Low Density		High density		Squatter		Stratum		(Rural and Urban)
	Obs.	Std.	Obs.	Std.	Obs.	Std.	Obs.	Std.	Obs.
10-14	38	32	29	37	42	42	45	45	39
15-19	75	27	43	32	29	36	27	38	33
20-24	6	24	18	30	33	33	22	36	31
25-29	0	23	40	28	26	31	43	33	29
30-34	13	21	27	25	33	28	25	30	26
35-39	29	17	24	23	22	26	20	28	24
40-44	17	19	13	23	24	26	0	23	24
45-49	25	18	24	21	16	24	30	25	22
50-54	50	15	0	17	20	19	35	21	18
55-59	20	23	43	27	30	30	17	32	28
Total	21	-	25	-	28	-	30	-	26
Number	92		202		307		104		705

SCATTERGRAM OF OBSERVED FREQUENCY AND SMOOTHED CURVE
OF GROWTH RETARDATION OF CHILDREN UNDER 5 YEARS OF AGE
IN ZAMBIA

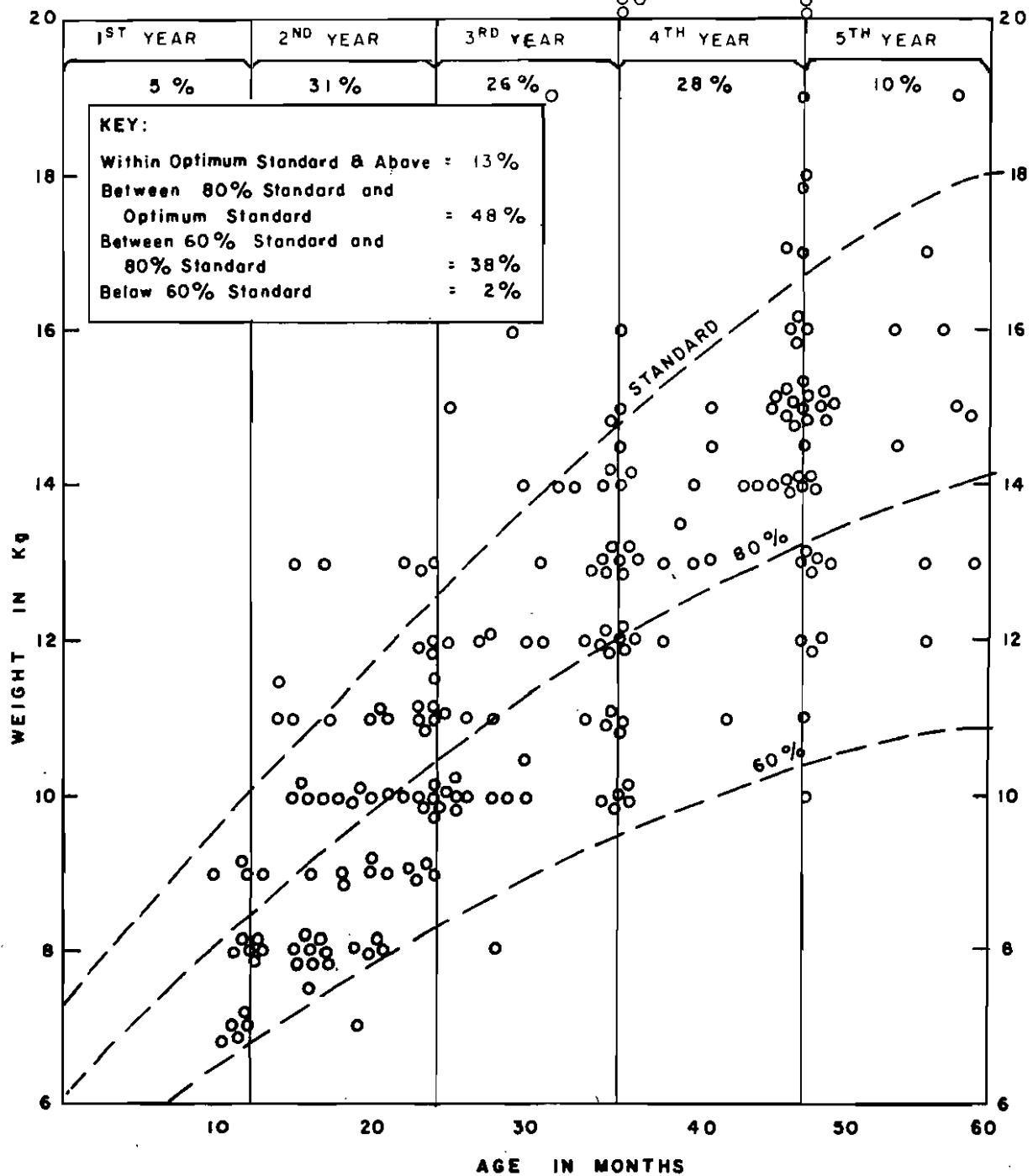
FIG. 2





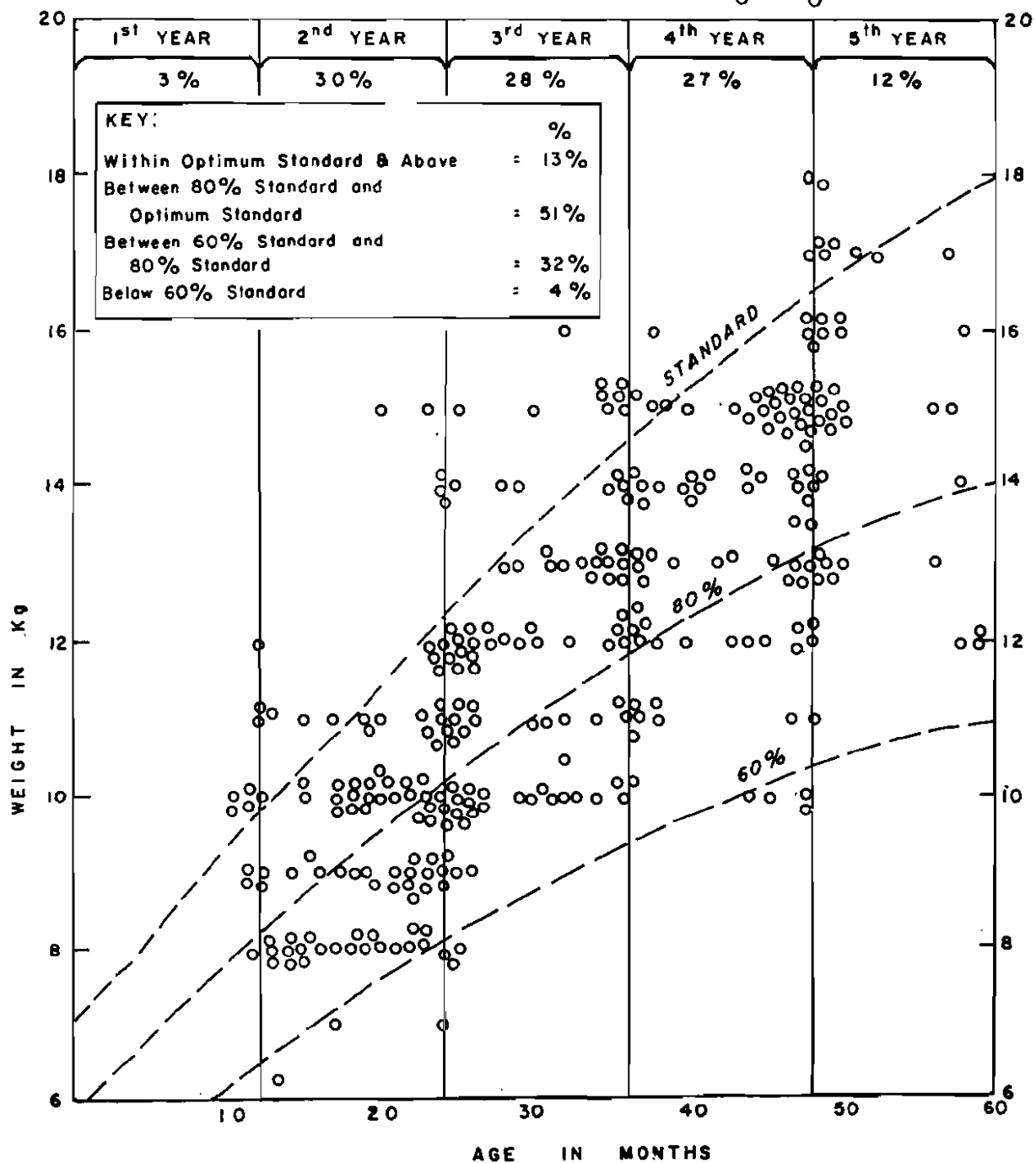
THE WEIGHT CHART: ZAMBIA URBAN HIGH DENSITY

FIG. 4



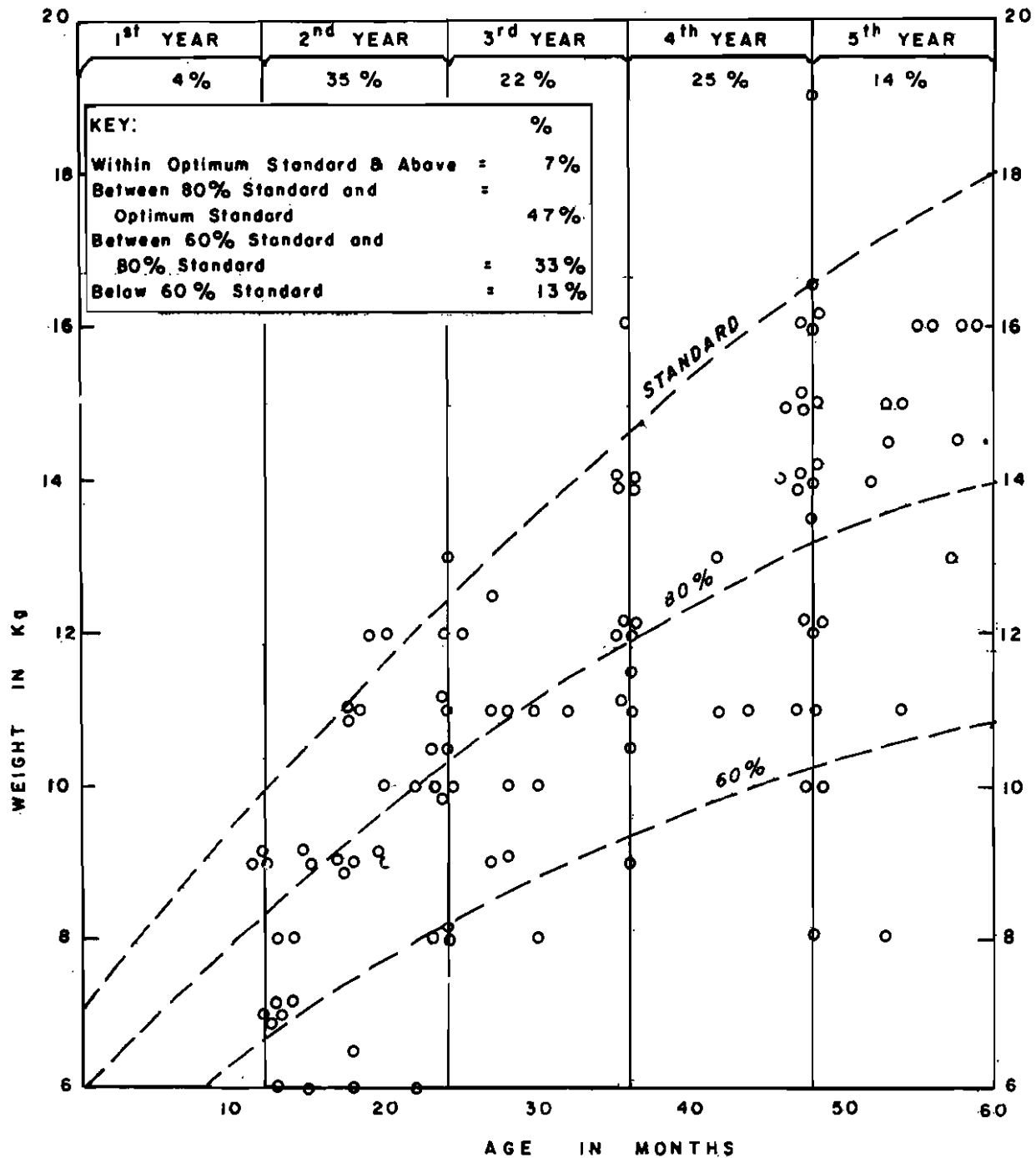
THE WEIGHT CHART : ZAMBIA URBAN SQUATTER

FIG. 5



THE WEIGHT CHART: RURAL ZAMBIA

FIG. 6



23. For purposes of determining the relative nutritional status of each child in the survey a scattergram of their respective weights was plotted against three clearly defined standards of growth. These standards represented by three different lines on the charts (Figs. 3-6) define the following three benchmarks of growth.

- (a) The optimum standard line of growth representing the most ideal nutritional status for the group;
- (b) The 80 per cent standard line of growth for children within 80 per cent of the standard;
- (c) The 60 per cent standard line of growth for children within 60 per cent of the standard.

24. From the graphs plotted, it has been possible to infer whether each child in the survey was of the right weight for his or her age or if he or she was relatively under-weight. In the ideal situation where ante-natal visits to clinics can provide a longitudinal data base, the type of graph used here can be plotted for each child monthly or according to the periodicity of the clinical visits to demonstrate whether a child is growing satisfactorily or not. The information available for this study is cross-sectional, and each child was weighed only once and this weight was plotted. The evaluation of normality of growth or otherwise has therefore to be done relatively since the weights of all the children in each survey strata have been put on one chart. A simple count of the children according to their position on the graphs helped to produce the summary information in Tables 4 and 5.

25. Table 4 presents relative weight standards of children under 5 years of age. It is seen that children in low density areas with comparatively better socio-economic conditions performed best on the relative weight scale. For instance, whereas 16 per cent of children in low density areas were within the optimum standard weight or above, the corresponding figures were 13 per cent for children in high density and squatter settlements and 7 per cent for children in rural areas. Again, children in the rural areas were the most disadvantaged.

Table 4. Children under 5 years of age by relative weight standards and socio-economic sample strata

Relative weight scale	Urban Locations			
	Low density %	High density %	Squatter %	Rural area %
1. Within optimum standard and above	16	13	13	7
2. Between 80% standard and optimum standard	60	43	51	47
3. Between 60% standard and 80% standard	24	33	32	33
4. Below 60% standard	0	2	4	13
Total.	100	100	100	100
Number:	92	202	207	104

The respective figures for those between the 50 per cent standard and the optimum level were: low density areas (60 per cent), high density areas (43 per cent); squatter settlements (51 per cent) and rural areas (47 per cent).

If the 80 per cent standard and above is taken as a benchmark, then 76 per cent of the low density areas children can be considered to be of good health, the corresponding percentages for the high density, squatter, and rural areas were: 61, 64 and 54 respectively. Furthermore, if those below 60 per cent standard is taken to correspond to those needing immediate nutritional attention then none of such children were found in the low density areas; the percentages were 2, 4 and 13 for high density, squatter and rural areas respectively. It is significant to note that the findings reported here reflect those of an earlier study which also showed children in the low density area of woodlands to be of better health than those in Kapwepwe squatter compound. ^{1/}

Table 5 shows percentage of children with relative weight standard by age last birthday. It must be noted that data for the fifth year are not considered because of the effect of age truncation on the number of cases. Taking the 80 per cent standard and above as being indicative of good health in the first four years of life, it is clear that, with the exception of the low density area, growth retardation was noticeably more serious in the first and second year of life.

Whereas 82 per cent of children in the low density areas enjoyed the best health conditions, the corresponding percentages were 45, 53 and 43 for high density, squatter and rural areas respectively. Comparison of urban with rural areas shows that the latter were disadvantaged; 53 as against 43 per cent. It is also seen that there was marked improvement in all the four survey areas in the third and fourth years. One possible explanation is that weaning of children from breast milk to solid foods is most likely to have a more deleterious effect on the body weight and nutritional status of the child. This is striking that in this relatively more critical first and second years of life, the urban low density area stands apart from all the rest of the survey areas in having the best health conditions reported for 82 per cent of the children enumerated. In contrast, rural Keembe had only 43 per cent, while the urban high density and squatter areas of Lusaka had 45 and 53 per cent respectively. For the same group in the first and second year of life, the rural with 43 per cent were distinctly worse off in comparison with the whole of the urban areas with 53 per cent within the 80 per cent standard and above.

V. ANTHROPOMETRIC FINDINGS : ARM CIRCUMFERENCE

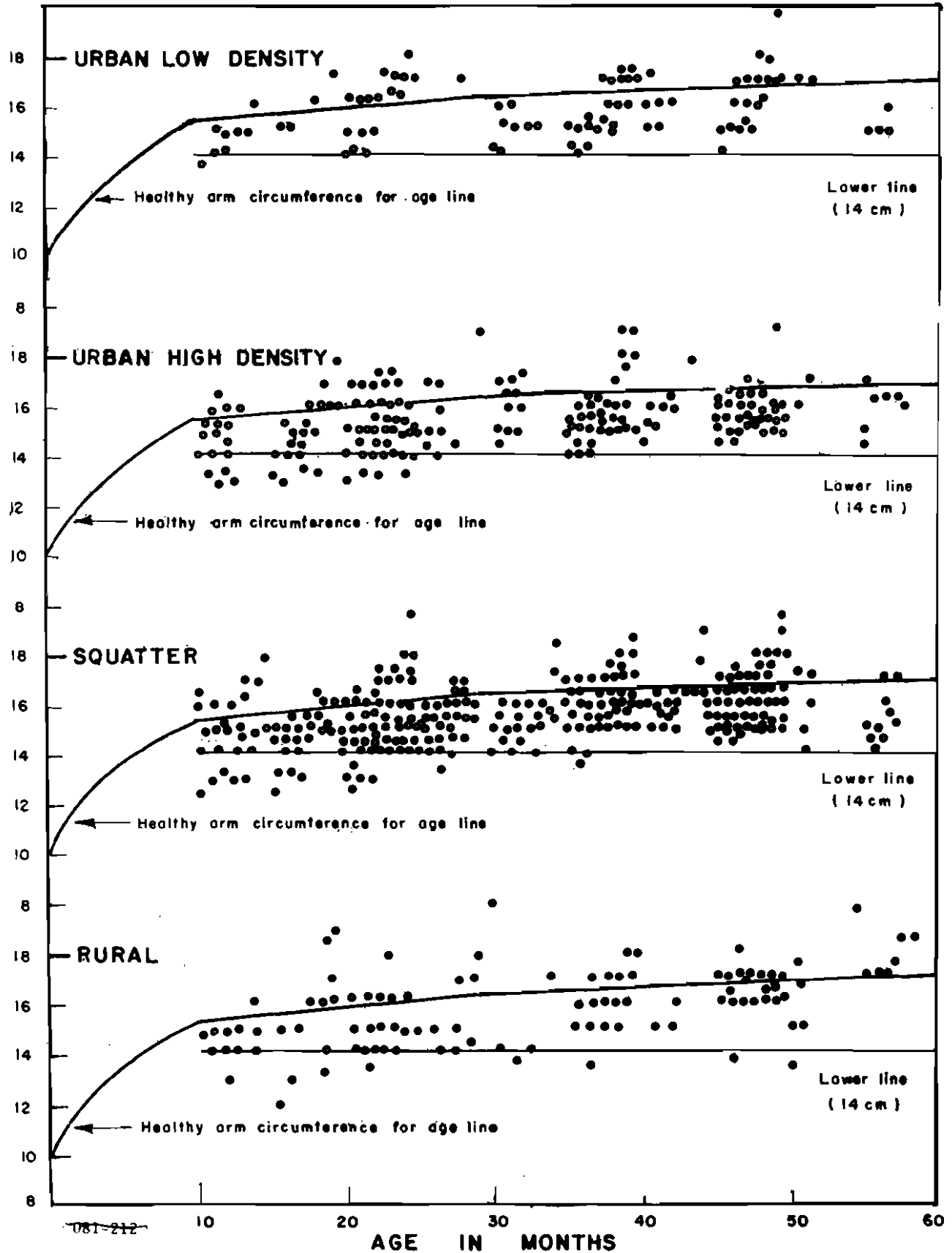
In this section, it is assumed that a healthy child has thick arms and that an underweight child has thin arms. Consequently, a healthy child has a big arm circumference while a thin malnourished child has a small arm circumference. Figure 7 presents the "arm-circumference-for-age" charts for the four survey strata. Comparison with the "weight-for-age" graphs, shows that the standard line indicating a healthy arm-circumference-for-age has a different shape. Unlike the almost linear curve of the weight-for-age line, that for the arm is not approximately linear. Instead, the line rises steeply from birth when the child's arm circumference is approximately 10.5 cm until the age one when it is about 16 cm. The curve more or less flattens out during the four-year period which follows since a healthy child's arm circumference only grows by a little over one centimetre, rising therefore from 16 cm. at the age of one year to a little more than 17 cm. at

^{1/} Maurice Kiro, et al., *Nutrition for Developing Countries*, malnourished
Oxford University Press, Nairobi, 1974, pp. 124-125.

Table 5: Children under 5 years of age by relative weight standard and socio-economic sample strata

Weight scale and survey strata	Year of life				
	First & second %	Third %	Fourth %	Fifth %	Total %
I. Urban low density					
1. 80% standard and above	82	65	85	85	76
2. Between 60% standard and 80% standard	18	35	15	15	24
3. Below 60% standard	0	0	0	0	0
Total	100	100	100	100	100
Number	22	30	27	13	92
II. Urban high density					
1. 80% standard and above	45	62	80	63	61
2. Between 60% standard and 80% standard	54	36	20	33	38
3. Below 60% standard	1	2	0	4	2
Total	100	100	100	100	100
Number	74	50	54	24	202
III. Urban squatter					
1. 80% standard and above	53	65	72	73	64
2. Between 60% standard and 80% standard	42	32	23	27	32
3. Below 60% standard	5	3	5	0	4
Total	100	100	100	100	100
Number	101	87	86	33	307
IV. Total urban (Lusaka)					
1. 80% standard and above	53	64	77	72	65
2. Between 60% standard and 80% standard	43	34	21	27	33
3. Below 60% standard	4	2	2	1	2
Total	100	100	100	100	100
Number	197	167	167	70	601
V. Rural (Keembe)					
1. 80% standard and above	43	50	70	64	54
2. Between 60% standard and 80% standard	37	42	23	22	33
3. Below 60% standard	20	8	8	14	13
Total	100	100	100	100	100
Number	40	24	26	14	104

Fig.7 ARM CIRCUMFERENCE FOR AGE GRAPHS



Five years of age. This standard line together with the lower line which is equivalent to a 14 cm. arm circumference line for delimiting malnourished children when they fall below the line were developed and applied to the Zambian situation in an earlier study. 1/

The number of dots falling below the lower or 14 cm. line in the chart for each of the survey stratum, is taken as the measure of the relative degree of malnutrition observed. In other words children whose arm circumference was below 14 cm. were malnourished. In the case of the urban areas, the well planned and predominantly middle and upper class low density areas had only one marginal case of malnutrition or 1 per cent of the total in the sub-sample falling below the lower line. The percentages for high density and squatter areas were 0.4 and 5.5 respectively. These figures confirm that the children of the poorer areas have thinner arms than those of the richer areas. As is the case of weight-for-age, the rural area had the largest proportion of disadvantaged children classified as malnourished and under-weight. The shanty-towns and urban high density areas were next to the low density areas. For all the four areas, however, the arm-circumference chart further underlines the clustering of the malnourished cases in the age range 10-24 months, a finding which agrees with our earlier observation that growth retardation as measured by the weight-for-age chart was more serious in the first and second years of life.

VI. REPORTED AND OBSERVED SYMPTOMS OF POOR HEALTH

31. Enumerators were required (as provided for in the questionnaire) to make observations on the visible health status of the child after measuring the height, weight and arm circumference. Obviously, such observations on the general health condition could not give a complete picture of morbidity or its symptoms among the children. Firstly, not all conditions would have been recorded. Secondly, although enumerators were adequately trained in lay reporting of health information, some bias could be expected from the differential ability of perception and reporting of conditions among the survey children by enumerators.

32. Nevertheless, the recorded observations have been found to provide useful background for interpreting the level and differences in anthropometric measurements. They also throw some light on the different types of ailments which afflict children in the different socio-economic settings covered by the survey. In this regard, the results are also interesting in providing useful background for more structured and detailed investigations of morbidity conditions of children as they relate to nutrition, sanitation, mortality levels and other factors.

Table 6 provides a summary of the reported health conditions of children by age in months and survey location. The symptoms identified and included under the various table headings were.

1/ Maurice King et. al., Ibid, pp. 1.5-1.6.

Table 6: Summary of general health conditions of children by survey location and age

Age (months) and locations	Reported conditions				Total	Number
	Diseased skin	Malnutri- tional cases	Others	No symptoms		
<u>Urban</u>						
<u>Low Density</u>						
12 or less	0.0	0.0	14.3	85.7	100.0	7
13-24	8.7	4.3	13.0	74.0	100.0	23
25-59	10.9	10.9	9.4	68.8	100.0	62
Total	9.6	8.5	10.6	71.3	100.0	92
<u>Urban</u>						
<u>High Density</u>						
12 or less	27.3	27.3	0.0	45.4	100.0	11
13-24	11.6	20.3	0.0	68.1	100.0	69
25-59	11.4	17.9	1.6	69.1	100.0	122
Total	12.3	19.2	1.0	67.5	100.0	202
<u>Urban</u>						
<u>Squatter</u>						
12 or less	11.8	17.6	5.9	64.7	100.0	17
13-24	18.2	20.2	3.0	58.6	100.0	98
25-59	17.6	20.2	2.6	59.6	100.0	192
Total	17.5	20.1	2.9	59.5	100.0	307
<u>Total Urban</u>						
12 or less	14.3	17.1	5.7	62.9	100.0	35
13-24	14.7	18.3	3.1	63.9	100.0	190
25-59	14.5	17.9	3.4	64.2	100.0	376
Total	14.5	18.0	3.5	64.0	100.0	601
<u>Rural</u>						
12 or less	28.6	14.3	0.0	57.1	100.0	7
13-24	8.8	11.3	5.9	73.5	100.0	34
25-59	8.0	8.0	0.0	84.0	100.0	63
Total	9.6	9.6	2.0	78.8	100.0	104

- (a) Diseased skin: scabies/sores/ringworm on the body, rough skin, and other skin manifestations.
- (b) Malnutritional cases: big/large stomach, thin legs, skinny, big head, brown hair, broken/sore lips, thin and weak, etc.
- (c) Other: this category included all other symptoms not specified above e.g. common cold, diarrhoea, sore eyes, chicken pox etc...

It is evident that there were proportionately more malnutritional cases than diseased skin symptoms in the urban areas. Except for the low density areas, this observation was true of the high density and squatter areas. Slightly more cases of skin diseases than symptoms of malnutrition were reported in low density areas which recorded the lowest relative index of malnutrition. In rural Keembe, there were proportionately as many cases of symptoms of malnutrition as skin disease.

The low density areas had more cases of children with no disease symptoms than the high density and squatter areas; the former areas also had fewer cases of children with either symptoms of skin diseases or malnutrition than the latter. In the light of the above consideration, the most healthy children were in the low density areas, followed by those in the high density areas, while the least healthy were in the squatter areas.

Surprisingly, children in the rural area (Keembe) were shown to have fewer symptoms than those in the town and this seems to contradict the results of the anthropometric measurements.

VII. CONCLUSION

The scope of the analysis undertaken has of necessity been dictated by the cross-sectional nature of the data available. Consequently, the focus has been on group and inter-group nutritional levels and variations. Despite the sample size age was found to be almost linearly associated with the weight and height of the survey children. Socio-economic class variations underline the inverse relationship between malnutrition and socio-economic status. Thus, urban children in the low density areas were taller, heavier and better nourished than their counterparts in the high density and squatter areas. They were also better-off than those in the rural area who in general were worse-off than the children in all areas of the city of Lusaka.

Among the three urban strata, children in the squatter areas were the most disadvantaged. Proportionately, more of the children in these areas suffered from "first degree malnutrition" and most of them were under-weight and more retarded in growth than those in the low and high density areas. With the exception of the low density areas, growth retardation appeared to be most severe in the first and second years of life and showed signs of improving later. In this connexion, weaning and poor substitute foods might be a factor in early growth retardation although it could also be that children in the late childhood age are un-representative since the mal-nourished members of their cohort would have been dead and therefore omitted from the survey.

Nevertheless, it is also interesting that the impact of slow growth at early age and consequent low weight as well as malnutrition were least severe in the better endowed low density areas where also the arm-circumference-for-age data show children there to be the least malnourished. Thus, children of the poorer areas had thinner arms and more of these were clustered in the early months (10-24 months) of life. This period corresponds to the time when most children have to be weaned. The spread of the identified symptoms of ill-health, except for the fewer symptoms the rural (than urban area) was in accord with the general socio-economic pattern of differentials. The results of this study demonstrate that growth among Keembe children was retarded when compared to the growth of Lusaka children. Thus, Lusaka children were taller, heavier and had thicker arm circumferences than their Keembe counterparts. The incidence of growth retardation was reported to be higher among Keembe than Lusaka children. Incidences of serious malnutrition, underweight, and retarded growth in Keembe appear to major contributory factors to the high level of infant and childhood mortality reported for Keembe in the analysis of mortality in this survey. The implications of this for the design of a government remedial programme and the selection of the target population are clear and instructive.

FOOD AND FEEDING PATTERNS AND HABITS IN ZAMBIA

Introduction

The basic needs which people require include food, clothing and shelter. Food is an essential requirement for day-to-day survival. The central role of food in human survival explains the great concern about rapid population growth and declining per-capita food production. This concern was expressed first by an English clergyman, Thomas Malthus. In 1793 Malthus predicted that since population increases geometrically and food supply increases only arithmetically, a point in time would be reached when there would be famine unless war and pestilence killed off people or they exercised moral restraint. Since Malthus population/food debate has been the subject of widely diversing views and technological innovation has increased food production far beyond the imaginations of Malthus. However rapid population growth particularly since the 1950s has stimulated considerable debate on food problems facing African countries which have become heavy importers of food.

Availability of food supplies on the world market conceals food shortages in many countries. In recent years several studies have highlighted food problems affecting African countries and the widespread malnutrition related to this. The per-capita calorie supply was estimated in 1973 to be 26 per cent of the minimum nutritional requirements in the less developed countries. In Africa, this supply was 21 per cent of requirements, a fact which implies that the continent is underfed. 1/ This situation is associated with problems of food shortages due to inadequate production and supply, crop failures caused by unfavourable weather conditions and the stagnating level of agricultural technology in these countries. Other food problems in Africa include traditional customs and taboos against eating certain types of food which would probably satisfy nutritional requirements. These taboos tend to be most applicable to children and mothers who in fact need special diets to maintain adequate nutritional levels.

Most African countries rely on significant imports of basic foods for their survival. Zambia has, like many other African countries, depended on food imports to supplement local production. The per-capita supply of calories in 1973 was estimated to be 27 per cent of the requirements. 2/

1/ Population Reference Bureau Inc., 'World's Children Data Sheet', Washington, 1972.

2/ Population Reference Bureau, Id.

Source of data

The data used in this paper were collected during the fourth round of this survey in August 1979. Information on food and nutrition in the household was obtained from women aged 12-50 years who were responsible for feeding the household in which they lived. Women in Zambia are in general responsible for the procurement and preparation of food for members of households. The questionnaire elicited information on food

Table 1. Food production indices 1969-1971 = 100

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
World	97	100	103	103	102	111	114	116	119	124	125	126
Africa	95	100	103	104	101	109	110	112	111	115	116	120
Zambia	97	95	107	109	107	121	125	134	130	129	120	127
	101 a/	93	92	97	-	-	-	-	-	-	-	-

Source 1. 1980 FAO Productivity Yearbook

2. Banda, 'Population Growth and Food Demand in Zambia 1970-1990'

a/ Refer to per-capita food production Zambia.

In an effort to gain greater insight into the pattern of food consumption in the household, women were asked what kind of foods they served for breakfast, lunch and dinner in their households during the week preceeding the survey. Their responses are presented in Table 2.

(a) Breakfast meals

These data show that as expected starchy foods were consumed at breakfast by households in all survey areas. However animal, vegetable and beverages were served more regularly in households in the high and low density and squatter areas of Lusaka. The low percentage of Keembe women who reported serving these foods reflect the eating habits in the rural areas which do not always include a standard breakfast of the type served in urban areas. Another reason would appear to be the non-availability of beverages and bread in the rural areas.

(b) Lunch meals

It is common for most households to serve lunch and dinner. These meals are a mixture of the staple food "Nshima" and gravy ~~sousee~~ (relish). The types of food that were served for lunch by most households comprised of starch, vegetable and animal proteins, vegetables and fruits.

These types of food are served by most families in Lusaka. Only 12.9 per cent of women in Keembe stated that lunch in their households included this variety of food. The data in Table 2 show that half the women in low density areas reported serving lunches which were made up of an adequate mix of starch, vegetables, animal protein and fruits. While the corresponding percentages were not very different for high density and squatter areas respectively. It would, therefore, appear that differences in food types consumed in these areas relate to quality and quantity.

(c) Dinner meals

The data in Table 2 reveal that meals served at dinner in most households were similar to those served for lunch. Thus, they featured such foods as starch, vegetable and animal proteins, vegetable and fruits. A significant difference is observed between dinner served in Lusaka and in Keembe. In the latter area a fifth of all the households served only starchy foods for dinner. This suggests a more monotonous diet among rural than urban population.

In order to evaluate the extent of women's satisfaction with the meals they served in their households information was collected on what women would prefer to serve for the different meals of the day. This information is summarized in Table 3.

Table 2 : Distribution of number of women by the types of food served at different meals in the survey areas

SURVEY AREA	T Y P E S O F F O O D																			
	Starch only		Starch and vegetable and animal proteins and fruits		Starch and animal protein and fruits		Starch and oils and fats animal protein and beverages (tea, coffee)		Starch and vegetable protein, and fruits		Starch and animal protein		Starch and animal protein and beverages (tea, coffee)		Starch and beverages (tea, coffee)		Other meals		Total	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
B R E A K F A S T																				
Rural Keembe	182	47.0	1	0.3	1	0.3	38	9.8	12	3.1	4	1.0	2	0.5	41	10.6	106	27.4	387	100
Low density	4	2.1	-	-	1	0.5	-	-	-	-	24	12.4	65	33.7	34	17.6	65	33.6	193	100
High density	10	2.2	-	-	2	0.4	-	-	-	-	6	1.3	171	37.6	117	25.7	149	32.7	455	100
Squatter	46	6.4	1	0.1	-	-	1	0.1	-	-	9	1.3	308	42.8	239	33.2	115	16.0	719	100
L U N C H																				
Rural Keembe	4	1.0	50	12.9	107	27.6	3	0.8	44	11.4	10	2.6	-	-	-	-	169	43.7	387	100
Low density	-	-	52	26.9	35	18.1	-	-	1	0.5	1	0.5	1	0.5	-	-	103	53.4	193	100
High density	-	-	129	28.4	111	24.4	-	-	1	0.2	2	0.4	3	0.7	-	-	209	45.9	455	100
Squatter	1	0.1	272	37.8	162	22.5	1	0.1	18	2.5	8	1.1	3	0.4	-	-	254	35.3	719	100
D I N N E R																				
Rural Keembe	2	0.5	50	12.9	115	29.7	3	0.8	44	11.4	12	3.1	-	-	-	-	161	41.6	387	100
Low density	1	0.5	54	28.0	34	17.6	-	-	4	2.1	1	0.5	1	0.5	-	-	98	50.8	193	100
High density	-	-	129	28.4	106	23.3	1	0.2	2	0.4	6	1.3	3	0.7	-	-	208	45.7	455	100
Squatter	3	0.4	262	36.4	159	22.1	1	0.1	17	2.4	12	1.7	1	0.1	-	-	264	36.7	719	100

(a) Preferred breakfast meals

The information on preferred breakfast foods indicate significant differences between Keembe and Lusaka. Thus while only 10.5 per cent of the Keembe women wanted to serve starch, animal protein and beverages at breakfast, over half of the women in the high and low density areas expressed the wish to serve this group of food items. On the contrary 53.7 per cent of the Keembe women would be satisfied with serving bread (starch) and tea only. This data suggests that Keembe households did not have breakfast partly because of the lack of suitable breakfast food items. Thus, as indicated in Table 2 only 10.6 per cent of the women served bread and tea for breakfast. This contrast significantly with the number of women who would want to serve these items of food for breakfast. It would therefore, appear that breakfast is not very common among households in the survey areas, although this is due partly to non-availability of food items suitable for this meal.

(b) Preferred lunch meals

The data on preferred lunch meals show a significant difference in food preferences between urban and rural women. Thus, while most Lusaka women preferred starch, animal protein, vegetable and fruits, most Keembe women contented themselves with a choice of "inshima" and meat only. It would, therefore appear that meat was not available to a majority of the rural households. An improvement in the supply of meat to this area will introduce a useful variety in the people's diet. Fruits are however not seen as important items of the household diet among the rural households. Thus, less than a quarter of the Keembe women preferred serving nshima and meat along with fruits and vegetables. Most of these probably chose this combination because vegetables were included.

(c) Preferred dinner meal

Analysis of responses on preferred dinner meals show that Keembe women had a more limited selection of preferred meals than Lusaka women. Thus, half of the women in Keembe said they would prefer to serve nshima (starch) and meat for dinner. Women in Lusaka expressed a wide choice of meals including starch, vegetable and animal protein and fruits.

The evidence from Table 3 suggests that there is still widespread ignorance of what constitutes a balanced diet among most women especially those in rural areas. It also suggests that the scarcity of food supplies restricts the selection of food items for most households.

Diet for pregnant women

It has been found that well nourished women from developed countries gain an average 12 kg of weight during pregnancy, while pregnant women from developing countries gain about 6 kg of weight. 3/ Several studies have identified anaemia as a common nutritional deficiency in pregnant women in developing countries where about 50 per cent of urban, and between

3/ FAO, Nutrition, Fertility and Mortality; A Review, Rome 1961.

Table 3 : Distribution of number of women by the types of food they prepared to serve at different meals

SURVEY AREAS	T Y P E O F F O O D																			
	Starch only		Starch and Vegetable and animal protein vegetables and fruits		Starch and animal protein vegetable and fruits		Starch and vegetable protein		Starch and vegetable protein and fruits		Starch and animal protein		Starch and animal protein and beverages (tea, coffee)		Starch and beverages (tea, coffee)		Other meals		Total	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
B R E A K F A S T																				
Rural Keembe	35	9.0	-	-	1	0.3	4	1.0	1	0.3	16	4.1	64	16.5	208	53.7	58	15.1	387	100
Low density	7	3.6	-	-	6	3.1	1	0.5	-	-	24	12.4	99	51.3	22	11.4	34	17.7	193	100
High density	51	1.1	5	1.1	34	7.5	1	0.2	-	-	34	7.5	238	52.3	90	19.8	48	10.5	455	100
Squatter	41	5.7	2	0.3	14	1.9	6	0.8	-	-	90	12.5	280	38.9	123	17.1	153	22.8	719	100
L U N C H																				
Rural Keembe	8	2.1	5	1.3	85	22.0	3	0.8	15	3.9	226	58.4	-	-	-	-	45	11.5	387	100
Low density	-	-	38	19.7	80	41.5	-	-	2	1.0	30	15.5	1	0.5	-	-	42	21.8	193	100
High density	2	0.4	68	14.9	213	46.8	2	0.4	2	0.4	75	16.5	5	1.1	2	0.4	86	19.1	455	100
Squatter	25	3.5	45	6.3	212	29.5	2	0.3	3	0.4	268	37.5	5	0.7	-	-	159	21.8	719	100
D I N N E R																				
Rural Keembe	4	1.0	3	0.8	75	19.4	2	0.5	2	0.5	211	54.5	14	3.6	1	0.3	75	19.4	387	100
Low density	-	-	36	18.7	73	37.8	-	-	-	-	33	17.1	5	2.6	4	0.9	42	21.8	193	100
High density	1	0.2	62	13.6	174	38.2	3	0.7	-	-	68	14.9	33	7.3	-	-	115	25.3	455	100
Squatter	21	2.9	20	2.8	186	25.9	3	0.4	7	1.0	276	38.4	24	3.3	5	0.7	177	24.6	719	100

70 and 75 per cent of rural women are anaemic during pregnancy. The effects of anaemia result in births of underweight infants, 4/ pregnancy wastage and infant mortality.

Table 4. Types of foods pregnant women were not expected to eat.

Types of food	Keembe	Low density	High density	Squatter
Eggs	44.4	73.1	56.7	51.2
Fatty meats	1.0	1.5	1.4	-
Mulamba (cat fish)	-	1.5	-	1.0
Bones	-	-	1.0	1.0
Elephant meat	-	-	1.0	-
Pork	13.3	-	8.5	4.4
Left-over food	8.5	-	2.1	2.1
Sugar cane	-	-	1.0	1.5
Okra	-	-	1.0	1.3
Tomatoes	-	-	1.0	-
Animal intestines	-	-	1.4	6.7
Wild game meat	4.9	4.5	5.7	3.5
Hot chilly	-	-	-	1.5
Pumpkins	-	-	-	1.2
Bream fish	-	1.5	1.0	1.0
Cabbie fish	1.0	3.0	1.4	3.5
Caterpillar	-	-	1.0	-
Mlewa (mice)	-	-	-	1.0
Pregnant animal that dies on its own	9.2	-	-	-
Other	12.7	13.4	15.3	13.6
Total	100.0	100.0	100.0	100.0
Number of women	391	205	445	735

It was shown in the previous section that there were differences in diet between rural and urban areas in Zambia. A greater variety of food items such as rice, bread, meat, sugar and tea are consumed more in the urban than rural areas. Analysis of food preferences also indicated that people in the lower income groups would prefer better diets than what they actually had. Information was obtained on special diets and food taboos for pregnant women.

4/ FAC, 1961, op.cit.

This information which is summarized in Table 4 shows Zambian women were not expected to eat eggs when they were pregnant. An overwhelming majority of women in the low density area (73.1 per cent) thought that pregnant women were not supposed to eat eggs. The corresponding percentage was 56.7 for the high density areas, 51.2 for the squatter areas and 44.4 for Keembe. This evidence is rather surprising in view of the fact that Lusaka women were relatively better educated and there would be expected to attach little importance to such taboos. The data also show that 18.3 per cent of Keembe women had strong views against eating pork, left-over food and "pregnant animal that dies on its own". It may also be noted that 1.5 per cent of women in high density areas thought that pregnant women were not expected to eat pork, while the corresponding percentage was 4.4 in the squatter areas. The data in Table 4 suggest that there was still some taboo against eating game meat during pregnancy. At least 3.5 per cent of women in each of the survey areas shared this view.

The reasons for the taboo against eating certain kinds of food are given in Table 5. More than half of women in the low density area (56.3 per cent) and over a third of women in Keembe, high density and squatter areas thought that the "baby will have no hair" when it is born if its mother ate the "forbidden foods" during pregnancy. The second major reason given by Keembe women was that the baby would "breathe like pig", if its mother ate pork. In the low density area, a second major reason was that the mother might "bleed too much during delivery", while in the high density areas it was thought that the woman may have prolonged labour at birth. A little over 1 in 10 in the squatter areas gave "delay in giving birth" as the second most important reason why pregnant women should not eat the forbidden foods.

Table 5. Reasons for food taboos during pregnancy

Reason	Keembe	Low density	High density	Squatter
Baby will have no hair	44.6	52.3	36.3	36.7
Bad for health	2.2	3.3	4.7	1.0
Bleeding during pregnancy	1.0	1.7	1.0	-
May bleed too much during delivery	-	5.0	1.0	9.2
Baby's cord may drop late	-	-	1.0	1.0
Baby may be born prematurely	-	1.7	1.0	1.0
Baby will be albino	-	-	-	-
May cause miscarriage	-	-	1.6	-
Child may have cracks	-	1.7	3.1	1.3
Child will suffer from asthma	-	-	-	-
Delay in teething	-	-	-	-
Baby will breathe like pig	6.2	-	1.0	-
Causes diseases to baby	1.5	1.7	-	1.3
Baby will not have eye lashes	-	-	-	-
Buttocks of baby will come first instead of the head at birth	-	-	-	1.3
Child will be lazy	-	-	-	-
Child will have crossed eyes	-	-	1.0	1.0
Child will not be healthy	-	-	1.0	1.6
May lead to fatal childbirth	-	-	3.1	1.0
There is no door in an egg so baby will not come out of mother's womb	1.0	5.0	-	7.9
The baby will produce plenty of saliva	-	-	-	1.0
Delay in giving birth	5.2	-	11.5	11.1
Stop bearing children	-	-	1.0	1.0
Others	36.1	21.6	26.7	22.6
Per cent	100	100	100	100
Number of women	691	205	445	735

Although the extent to which women adhere to these taboos cannot easily be measured, the persistence of knowledge about them in the society calls for health and nutritional programmes which will wipe out their practice.

Diet not recommended to pregnant women

In the previous section it was noted that tradition still influences the types of food that women are expected not to eat during pregnancy. It may be noted that it is during this period that women should have balanced diets and some of the food taboos deprive pregnant women of very reliable sources of calcium, protein, vitamin nutrients, etc. which are so necessary for a successful pregnancy and a healthy baby.

Table 6. Types of foodstuffs prohibited during pregnancy period in the survey areas.

Food prohibited	Rural Keembe		Low density		High density		Squatter	
	No.	%	No.	%	No.	%	No.	%
Foods with salt	2	0.3	2	1.0	6	1.0	14	1.9
Starchy foods, fats								
pork	151	38.6	1	0.5	4	0.9	364	49.5
Okra	10	2.6	-	-	-	-	13	2.4
Elephant meat	-	-	1	0.5	-	-	3	1.1
Fish	-	-	-	-	-	-	9	1.1
Soil	4	1.0	2	1.0	6	1.3	6	0.8
Eggs	-	-	-	-	-	-	-	-
Others	60	15.3	2	1.0	2	0.4	69	9.4
None	164	42.2	197	96.0	425	96.4	240	33.6
Total	391	100	205	100	445	100	735	100

Table 6 presents information on kinds of food which women were advised not to eat during pregnancy. Such advice was usually given by doctors, midwives or traditional healers. The data in this table show that most women (about 38.6 per cent) in Keembe were advised to cut down on starchy foods, fats and pork. However, about half (49.5 per cent) of women in squatter area were advised not to eat starchy foods, fats and pork. Only a very small percentage of women in the low and high density areas of Lusaka were prohibited from eating certain food items.

Table 7. Reasons for prohibition of certain food during pregnancy.

Reasons	Rural Keembe		Low density		High density		Squatter	
	No.	%	No.	%	No.	%	No.	%
Raises blood pressure	136	34.8	20	9.8	114	25.6	235	32.0
Weakens body	96	24.6	41	20.0	202	45.4	326	44.6
Constipates	1	0.3	2	1.0	7	1.6	7	1.0
Child will be dirty in womb	10	2.6	-	-	2	0.4	1	0.1
Baby will have rashes	4	1.0	6	2.9	9	2.0	5	0.7
Others	-	-	-	-	-	-	-	-
None	144	36.7	136	66.3	111	25.0	159	21.6
Total	391	100	205	100	445	100	735	100

Information on reasons why doctors, midwives and healers gave against certain food items is presented in Table 7. It is noted that the reasons vary between urban and rural areas. Relatively more Keembe women (34.8 per cent) were advised not to eat certain kinds of food because they would raise blood pressure. The corresponding percentages were 9.8, 25.6 and 32.0 in low density, high density and squatter areas, the most common reasons for prohibition of certain kinds of food during pregnancy were that these foods would "weaken the body" and "raise blood pressure". Although these diagnosis are not medically categorized, it would appear that high blood pressure in pregnancy is a common ailment among rural women and urban women of the low income group.

Summary and conclusion

The types of food, the feeding patterns and habits of any society are influenced by ecological factors, traditional values as well as purchasing power of the people. Maize which is grown throughout the country is the staple in most households in Zambia and provides a base of all diets in a majority of Zambian homes.

Although cooked mealie meal (maize flour) is served as nshima by most households throughout the country, there are other types of food that accompany it. Households in rural areas tended to eat more starchy foods (nshima) with either vegetable (relish) or sometimes with animal protein such as meat, ~~poultry~~ and fish. These are the types of food that are easily obtainable in the rural areas, and infact, most of the food that is consumed is produced by the villagers themselves. Although rural households potentially have a better chance of living on a well balanced diet, ignorance of what constitutes good food limits their diet to a few items.

The diets of most households in the urban area comprised a wider variety of foods. The data showed that people in the higher income areas ate almost all types of foods including nshima, rice, vegetable and animal proteins, fats as well as tea, coffee or cocoa. Vegetables and fruits appeared more often in the diets of households in Lusaka than in Keembe.

Analysis of food preference showed that households in poorer areas would like to improve their diets. However, even the choice listed presents a very limited variety. There is therefore, a strong case for improving nutritional knowledge among the population.

Although there were dietary differences among households in both rural and urban areas, it was shown that there were common taboos against certain kinds of food. Most women reported that they were not expected to eat certain types of food such as eggs, fish, pork, game meat during pregnancy. These taboos were based on the belief that infants would be born without hair, babies would breathe like a pig or that there would be prolonged labour at childbirth. It was clearly shown that these strong traditional views about food taboos exist in both rural and urban households.

It was also observed that pregnant women were requested by doctors, nurses and healers not to eat certain foods. Since during pregnancy women are most vulnerable to malnutrition this limitation of food items further aggravates the scarcity of food for pregnant women. The food restrictions imposed by doctors and nurses apply mainly to problems of body weight and high blood pressure. These findings call for a national nutritional survey and education programme that would focus on the nutritional requirements of children and mothers.

Other evidence from this survey shows that differences in quality of food between areas are reflected in the health of children. Children from poorer areas, Keembe and the squatter areas for example, tended to have higher levels of first degree malnutrition. They are underweight and show signs of growth retardation. The higher level of mortality in children aged 1-4 in Keembe and in the squatter areas of Lusaka is usually associated with lower nutritional status. An improvement in the mortality situation among children under five would require significant improvements in food supply to these areas and the organization of a nutrition programme that will improve women's knowledge of what constitutes good food and how it should be prepared.

BREASTFEEDING AND SEXUAL ABSTINENCE IN ZAMBIA

I. INTRODUCTION

When Louis Henry developed the theoretical concept of natural fertility a quarter of a century ago, he defined it to mean the fertility that exists in societies in the absence of deliberate birth control. However, the data he assembled showed a wide variation in levels of natural fertility across societies and the mean number of children per completed family of women married at age 20 ranged from 6.2 among Hindu villagers in Senegal in the 1940s to 10.9 among Hutterites married from 1921 to 1930 1/.

Among the many factors which can contribute to the wide variations in natural fertility, Potter identified lactation as the single most important 2/. In the opinion of Okediji, et.al "sexual abstinence has probably been the single most important factor in the containment of human fertility. Indeed, on a global scale, this may still be the case, although change is demonstrably occurring rapidly" 3/.

The relative weights of breastfeeding and sexual abstinence are hard to distinguish because in some societies lactation is used in conjunction with prolonged practice of postpartum sexual abstinence, while in others lactation is used with limited practice of post-natal sexual abstinence. However, it can be asserted that breastfeeding in conjunction with post-natal sexual abstinence is among the main factors responsible for the wide variations in natural fertility observed in different societies. Thus, the practice of breastfeeding and sexual abstinence have been the main methods of fertility regulation and child-spacing in preindustrialised agrarian societies. Breastfeeding has the effect of prolonging postpartum amenorrhea by inhibiting ovulation and thus providing a contraceptive effect. Prolonged breastfeeding coupled with intensive postpartum sexual abstinence have thus been responsible for keeping fertility way below the potential maximum.

"That the practice has survived ages of usage with minimum modifications in the more traditional areas of Africa is symptomatic of its socio-economic importance. The survival and continuity also derive from its deep rooted socio-cultural foundations".3/. Thus, the customary practices of breastfeeding and post-natal sexual abstinence are socially sanctioned behaviour patterns that are vital for community and group survival. Breastfeeding guarantees adequate nutrition to the newborn child and provides

1/ A.K. Jain, et.al., "Lactation and Natural Fertility" IUSSP, Natural Fertility, Ordina Editions, Liege, Belgium, 1979, p. 151.

2/ F.O. Okediji, et.al., "The Changing African Family, Project: A Report with special reference to the Nigerian segment" Population Council, Studies in Family Planning, Vol. 7, No. 5, May 1976, p. 129, see also evidence from country reports on WFS.

3/ P. O. Ohadike, Social and Economic Functions of child spacing. Paper prepared for the Workshop on Child-spacing in Tropical Africa: Tradition and change, Brussels, 17-19 April 1979, p. 10.

protection against several ailments at a time when the child is unable to feed itself. In conjunction with post-natal sexual abstinence, the resulting longer duration of lactation further enhances the chance of survival of child and mother, by affording more time for the child to grow and develop before another one is born, and affording the mother more time to regain strength. Thus, the demographic impact of breastfeeding and sexual abstinence is to reduce infant and childhood mortality and frequent and closely spaced pregnancies.

In many African societies, prolonged breastfeeding is commonly practised sometimes extending to a period of three years or more. This is sometimes accompanied by extended postnatal sexual abstinence. Among the Yorubas of Nigeria, postpartum sexual abstinence exceeds the duration of breastfeeding. Despite the fact that the practice of breastfeeding and postpartum sexual abstinence are common in Africa, the scale of combination of the two practices varies between societies. "The difference in the scale of combination is closely related to the degree of influence exercised by both practices on birth interval and consequently, on fertility." 1/

In recent years, the practice of breastfeeding and prolonged postpartum sexual abstinence have been on the decline in many developing societies. Many scholars have identified the shift from breast to bottle feeding which has been taking place in developing countries, especially in cities and peripheral urban areas as a major cause of this decline and have highlighted its detrimental consequences for infant health and survival. 2/ Undoubtedly, this has policy implications of considerable magnitude for health planners particularly in areas where practice of modern contraception is not widespread.

This paper will address the following questions: 1. What is the prevalence and duration of breastfeeding? 2. How does the duration of breastfeeding vary among different subgroups classified by age, level of education and place of residence? 3. What do Zambian women know about sexual abstinence?

1/ P.O. Ohadike, Ibid., p. 6.

2/ John Knodel and Nibhou Debavalysa, "Breastfeeding in Thailand. Trends and Differentials, 1969-79, Population Council, Studies in Family Planning, Volume II, No. 12, December 1980, p. 355.

-Raymond B. Isley et al., Relationships of Rural Development strategies to Health and Nutritional Status: Consequences for Fertility, USAID. The Rural Development and Fertility Project, 1979.

-UNICEF, Breastfeeding and health. Assignment Children 55/56. Geneva, 1981.

II. SOURCE OF DATA

The data for this paper are derived from the second round of the survey. This round elicited information on adult mortality, migration, fertility and mortality, breastfeeding and weaning practices, child birth, abstinence and age at menarche. It should be mentioned that the first round collected basic demographic information on fertility and mortality and their socio-economic correlates as well as on knowledge, attitude and practice of contraception. The merging of the data files from the two rounds permits a more detailed analysis of breastfeeding and its correlates.

The breastfeeding information collected in this survey is not entirely free from irregularities and heaping errors found in retrospective data. We used data only pertaining to closed birth intervals to avoid the problems of open birth interval data. However, not adequate solutions were found for the problems of circular causality where pregnancy intervened during breastfeeding. Our results should therefore be interpreted with utmost caution.

III. DURATION OF BREASTFEEDING

Zambian women living in rural Keembe and selected areas in Lusaka were asked to indicate whether they breastfed the first child, the child born before the last and the most recent or last child. The data in Table 1 show that a great majority of women breastfed their children. For instance, the percentage of women who breastfed varied from 97.3 for the first child to 98.2 for the child born before last in Lusaka; the corresponding values for Keembe were 97.3 and 99.2 respectively. On the other hand, less than 3 per cent of women did not breastfed the first child, the child born before last and the most recent child. The proportion of women who breastfed the first child was slightly less than the corresponding proportion for the child born before last.

Table 1: Percent of women who breastfed the first child, the child born before last and the most recent child

Order of Child	L U S A K A				K E E M B E			
	Yes	No	N.S.	Total No. of women	Yes	No	N.S.	Total No. of women
First child	97.3	2.7	198	11,481	97.3	2.7	59	397
Child born before last	98.2	1.8	414	1,419	99.2	0.8	98	362
Most recent child	97.3	2.7	252	1,001	98.7	1.3	234	298

N.S. = Not Stated

Table 2 presents the distribution of women by length of breastfeeding the first child, the child born before last and the most recent child. The duration of breastfeeding was concentrated at 10 months and over with bi-modal concentrations at 10-12 and 16-19 months. It is seen that there are pronounced differences in breastfeeding practices between Lusaka and Keembe. For example, 46.7 per cent of women in Keembe breastfed the first child for a period of between 16-19 months while the corresponding percentage for Lusaka was 26 per cent. Breastfeeding was shorter for the child born before last in Lusaka, 14.8 months, as compared with 17.1 months in Keembe. There are no significant differences between the mean duration of breastfeeding and order of birth in both Lusaka and Keembe. This seems to suggest that duration of breastfeeding has been the same irrespective of order of birth.

Table 2: Per cent distribution of women by duration of breastfeeding of the first child, the child born before last and most recent child, Lusaka and Keembe

Months of breast- feeding	L U S A K A			K E E M B E		
	First Child	Child born before last	Most recent Child	First Child	Child born before last	Most recent Child
0-9	15.0	13.3	16.6	1.3	3.0	5.5
10-12	24.8	27.8	20.1	22.1	19.1	19.1
13-15	16.4	15.6	14.8	12.8	12.0	11.4
16-19	26.0	26.9	25.6	46.7	48.3	43.2
20 or more	17.8	16.4	22.8	17.1	17.6	20.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
Mean	15.1	14.5	14.8	16.9	17.1	17.0

In societies where natural fertility that is fertility in the absence of deliberate birth control, is the norm the birth interval corresponds to the duration of breastfeeding and post-partum sexual abstinence. Strictly speaking, the women covered in this survey cannot be assumed to experience natural fertility because about one quarter of them reported having used contraceptives. Therefore, the birth interval for some of these women is also influenced by contraceptive use. Respondents were asked to indicate how long a mother was "expected to breastfeed her child". They were also asked to state whether the length of time should "be shorter or longer". It is interesting to note that the overwhelming majority of women recommended a longer duration of breastfeeding; 83.4 and 96.5 per cent in Lusaka and Keembe respectively. In Keembe, only 3.5 per cent of the women recommended a shorter duration. The proportion of Lusaka women who recommended a shorter period was much higher: 16.6 per cent. This evidence suggests that breastfeeding is still valued by most women in Zambia, although a program to reduce the number of urban women shifting away from prolonged breastfeeding should be mounted.

The data in Table 3 show that mothers were expected to breastfeed for 13.8 months in Lusaka and 13.6 months in Keembe. A significant proportion of women in Keembe (13.3 per cent) and 8.9 per cent of women in Lusaka replied that breastfeeding should be as long as possible. A considerable proportion of women also responded that the duration of breastfeeding should be two years or more, 23.6 and 16.2 per cent in Lusaka and Keembe respectively.

Table 3: Percentage distribution of women by expected duration of breastfeeding

Duration in Months	Lusaka		Keembe		Total	
	Number	Per cent	Number	Per cent	Number	Per cent
Less than 12 months	49	2.8	3	0.6	52	2.3
12-23 months	977	55.4	261	53.0	1238	55.9
24 months and over	417	23.6	73	16.2	490	22.1
As long as possible	157	8.9	85	18.3	242	10.7
Don't know	165	9.3	29	6.4	194	8.8
Total	1765	100.0	451	100.0	2216	100.0
Not stated	877		160		1037	
Mean (months)	13.8		13.6		13.6	
No. of women	2462		620		3282	

The birth interval of 24.6 months (Lusaka) and 20 months (Keembe) recommended by the women was obviously shorter than expected if account was taken of the expected mean duration of breastfeeding of over eighteen months and if allowance was made for a gestation period of ten months. The mean duration of breastfeeding of the first child, the child born before the last and the most recent child in Lusaka were 15.1, 16.5 and 17.8 months respectively; the corresponding figures for Keembe were 16.9, 17.1 and 17.0 months as shown in Table 2.

In contrast to the prolonged lactation and intense postpartum sexual abstinence of three years or more common in many African societies, the reported duration of breastfeeding of 15 months for Lusaka, and 17 months for Keembe was relatively short. It should be noted that the mean duration of breastfeeding for Lusaka was longer than that of Lagos city (12.4 months) which had the same percentage of women using contraceptives (20.0 per cent). Table 4 presents recent data on duration of sexual abstinence and breastfeeding based on this survey and other studies.

Table 4 Comparison of mean duration of postpartum sexual abstinence and breastfeeding for selected countries

Country	Duration of sexual abstinence	Duration of breastfeeding (months)	Source of Information ^b
Zambia, Lusaka	6.0 ^a	15.0	UNFCA/CSO, Zambian Survey, 1979
Rural area	5.0 ^a	17.0	UNFCA/CSO, Zambian Survey, 1979
Senegal- Rural	25.0	24.0	Cantrelle & Levidon, 1971
- Rural	3 days	13.0	Sante & Balen, 1969
Ghana- Rural	6.0	10.0	Black, 1976
Togo -Rural	9.7	23.2	Adaba, 1979
Nigeria			
- Lagos city	15.9	12.4	Adegbola <i>et.al.</i> , 1977,
- Ibadan (Urban)	22.0	-	Caldwell & Caldwell, 1977
- Ibadan (Rural)	26.8	-	Orululoye, 1977
- Imesi-Ile (Rural)	26.5	23.2	Martis <i>et.al.</i> , 1964

Source:-

- a Expected duration of postpartum sexual abstinence among people in the survey areas.
- b Except for Zambia, see I.D. Orululoye. "The significance of breastfeeding for fertility and mortality in Africa", in UNECA, Population Dynamics: Fertility and Mortality in Africa, Addis Ababa, 1979, page 501, Table 1.

The respondents were asked to give reasons why they preferred longer to shorter duration of breastfeeding. The results are summarized in Table 5. Almost half the women in Lusaka and two thirds of these in Keembe indicated that longer duration of breastfeeding "makes the child grow stronger". It is interesting to note that the majority of women understood the beneficial effects of prolonged breastfeeding. Surprisingly only 1.8 per cent of the women in Keembe associated longer duration of breastfeeding with prevention of pregnancy. On the other hand, 1 in 10 in Lusaka thought that longer duration of breastfeeding could "prevent pregnancy" probably by delaying postpartum amenorrhoea and thereby inhibiting the onset of ovulation. The responses in Table 5 do not suggest that women deliberately use breastfeeding to space or limit the number of children they would eventually bear. It may well be that the practice of breastfeeding has, over generations been so institutionalized that it has become a social norm and has been adhered to by most women without recourse to all its effects.

Table 5. Reasons for longer duration of breastfeeding

	Lusaka		Keelebe		Total	
	Number	Per cent	Number	Per cent	Number	Per cent
Breast milk is best for baby	127	9.3	22	3.1	149	5.2
Infant child grow stronger	512	37.7	320	46.6	832	33.6
More hygienic	5	0.4	5	0.7	10	0.4
Can't afford other thing	41	3.1	2	0.3	43	1.7
Child malnutrition	9	0.6	2	0.3	11	0.4
To prevent pregnancy	137	10.2	3	0.4	140	5.6
Other reasons	223	17.0	75	10.7	298	12.0
Don't know	155	11.6	22	3.1	177	7.1
Total	1343	100.0	556	100.0	1900	100.0
Not stated	1052		149		1201	
Number of women	2395		605		3000	

After the second world war, substantial advances were made in the manufacture of breast milk substitutes and industrialisation and improved living standards in developed countries led to the widespread use of "infant formula" without loss of many lives. Unscrupulous methods of marketing these products in developing countries have cost the lives of many infants in poor countries. Research interest is increasingly focussed on the duration and intensity of breastfeeding. Table 6 presents the distribution of women who breastfed the most recent child. The proportion of women who breastfed the most recent child increases substantially with age of women. In Lusaka, this ranged from 25.0 per cent among women aged 15-19 years to 94 per cent among women aged 45-49 years, while the corresponding values in Keelebe were 26.7 and 97.3 per cent. More women (70.0 per cent) in Keelebe than Lusaka (57.7 per cent) breastfed the most recent child while the reverse is the case for women still breastfeeding at the time of the survey. The proportion of women still breastfeeding was also highest among younger women (15-19 years) and lowest among older women (40-49 years). The proportion still breastfeeding depended, of course, on the age of the most recent child at the time of the survey. Women still breastfeeding were those with young babies and were therefore not different from those whose children had passed the normal age of breastfeeding. These data also suggest that the practice of breastfeeding is universal in both Keelebe and Lusaka although its intensity varies by place of residence. Whereas only 3.1 per cent of the mothers in Keelebe did not breastfeed the most recent child, the corresponding figure for Lusaka was 1.5 per cent.

Table 6 Percentage Distribution of women who breastfed the most recent child by age of women

Age of women	L U B A N A					T I L B N				
	Yes	No	Still breast- feeding	N.S.	Total	Yes	No	Still breast- feeding	N.S.	Total
12-14	-	-	-	27		-	-	-	11	11
15-19	49.0	1.1	49.0	92	170	29.7	-	73.3	10	30
20-24	43.4	1.1	55.5	70	342	35.1	-	34.9	12	55
25-29	53.7	1.1	44.9	23	310	73.9	-	21.1	5	43
30-34	57.3	2.0	40.2	3	252	65.1	-	34.9	2	65
35-39	63.7	2.1	23.4	9	137	66.3	1.9	32.1	4	57
40-44	62.1	0.9	17.1	12	129	73.2	-	27.2	1	56
45-49	90.0	1.5	4.5	6	73	89.1	1.7	9.5	10	60
Total	57.7	1.5	40.7	117	1510	70.2	0.8	29.5	1	300

N.S. = Not stated

The distribution of women by duration of breastfeeding for the most recent child presented in Table 7 do not show any consistent pattern of breastfeeding by age of women. In general, younger women breastfed for shorter durations (15 months or less) than older women. However, older mothers breastfed for longer durations (16 months and over) than younger ones. As expected, length of breastfeeding varies with place of residence. A significant proportion of women in Lusaka (54 per cent) as compared with 35.7 per cent in Keembe breastfed the most recent child for a period ranging from 0 to 15 months. On the other hand, 64.3 per cent of women in Keembe breastfed for 16 months or more, the corresponding figure for Lusaka was 45 per cent. This evidence suggests significant differences in durations of breastfeeding between urban and rural communities in Zambia.

Table 7: Distribution of women by duration of breastfeeding of the most recent child and age of women

Age of women	L U S A K A					
	Duration in months					Total No. of women
	0-9	10-12	13-15	16-19	20 and over	
15-19	30.0	26.7	6.6	36.7	-	30
20-24	22.7	18.9	23.6	26.5	8.3	132
25-29	18.3	20.7	14.0	30.5	16.6	164
30-34	19.2	20.5	17.1	24.0	19.2	146
35-39	11.5	19.1	17.6	27.5	24.3	131
40-44	11.1	18.2	9.1	26.3	35.3	99
45-49	16.7	35.2	7.4	16.7	24.0	54
Total	17.5	21.0	15.5	26.7	19.3	756

Mean = 15 months

K E E M B E						
15-19	16.7	16.7	16.7	50.0	-	6
20-24	3.7	14.8	3.7	51.9	25.9	27
25-29	6.9	20.7	10.3	48.3	13.8	29
30-34	10.8	18.9	21.6	32.4	16.3	37
35-39	2.8	16.7	16.7	38.8	25.0	36
40-44	2.4	16.7	9.5	52.4	19.0	42
45-49	5.7	20.8	7.5	37.7	28.3	53
Total	5.5	18.7	11.5	43.4	20.9	230

Mean = 17 months*

* mean for Low density = 11.3 months High density = 13.7 months

Squatter = 15.6 months.

IV. Sufficiency of breast milk

Differences in duration of breastfeeding observed between Lusaka and Keembe women raise a number of policy relevant questions the most important of which is the sufficiency of breast milk. During the survey, women were asked the question: "Did*do you have sufficient milk when you breastfed/ breastfeed your last child?" Responses to this question are summarized in Table 8.

Table 8: Distribution of women by whether they had sufficient milk when they breastfed their last child

	Urban (Lusaka)		Rural (Keembe)		Total	
	No.	%	No.	%	Urban & Rural No.	%
Sufficient breast milk	1150	86.8	313	91.0	1463	87.7%
Insufficient breast milk	175	13.2	31	9.0	206	12.3
Total	1325	100.0	344	100.0	1669	100.0
Not stated	184		57		241	
No. of women	1509		401		1910	

Although most women reported that they had sufficient breast milk when they breastfed their last child, many more Keembe women (91.0 per cent) than Lusaka women (86.8 per cent) reported having sufficient breast milk. These data suggest that rural women had more breast milk for their babies than Lusaka women. Thus, more women in Lusaka reported that they had insufficient breast milk (13.2 per cent) than Keembe women (9.0). Whether these results were influenced by differences in women's attitudes to breastfeeding than not by physical differences will require medical investigation.

When these women were asked why they did not have sufficient breast milk for their most recent child, their responses identified a wide variety of reasons. These are regrouped and presented in Table 9. It was evident that mothers who had insufficient breast milk did not know the reasons and probably never sought medical advice. Thus, 68.6 per cent Lusaka women who reported that they had insufficient breast milk for their most recent child did not know why. The corresponding percentage for Keembe women was 38.7 per cent. In contrast, maternal illhealth and malnutrition was given as reason for insufficient breast milk by only 13.7 per cent Lusaka and 19.4 per cent Keembe women.

Table 9: Distribution of women by reasons why they did not have sufficient milk for their most recent child

Reason for insufficient breast milk	Urban (Lusaka)		Rural (Keembe)		Total Urban & Rural	
	No.	%	No.	%	No.	%
Malnutrition (mother)	2	1.1	3	9.7	5	2.4
Mother's sickness	22	12.6	3	9.7	25	12.1
Other reasons	31	17.7	13	41.9	44	21.4
Don't know	120	66.6	12	38.7	132	64.1
Total	175	100.0	31	100.0	206	100.0

Significant factors affecting the sufficient flow of mother's milk after childbirth are the time when the mother starts breastfeeding and the age at which the child is gradually but steadily made to depend on other milk and foods. Analysis of information on when women started breastfeeding, presented in Table 10, shows that in nearly all cases Zambian women breastfed their children from birth. Thus, 98.3 per cent of all women who stated the time when they started breastfeeding indicate that women in this category breastfed from birth. In fact, all Keembe women in this category breastfed from birth. In Lusaka, a small proportion (2.1 per cent) of the women did not start breastfeeding at birth although they eventually breastfed. Most of these cases were certainly due to complication of the parturition. The evidence from these data suggests that except for health reasons nearly all Zambian women breastfeed their children from birth.

Table 10: Distribution of women who breastfed their most recent child by time when breastfeeding started

Time when breastfeeding was stated	Urban (Lusaka)		Rural (Keembe)		Total Urban & Rural	
	No.	%	No.	%	No.	%
At birth	1259	97.9	332	100.0	1591	98.3
After first month	27	2.1	-	-	27	1.7
Total	1286	100.0	332	100.0	1618	100.0
Not stated	271		93		359	
Number of women	1557		420		1977	

The continuation of breastfeeding is of course dependent on several factors. One of these relates to the timing of the introduction of other milk during the breastfeeding period. The data presented on Table 11

show the ages at other milk was introduced during the breastfeeding period. These data suggest that less than a fifth of all the women (17.5 per cent) used other milk to supplement breast milk. However, more urban women (21.0 per cent) used other milk during breastfeeding than rural women (4.9 per cent). The "not stated" category represents women who did not use other milk during breastfeeding. Although these data show the widespread practice of breastfeeding among urban and rural women, they suggest that one out of five urban women use other milk while breastfeeding.

Table 11: Ages at which other milk was introduced during the breastfeeding period

Age at which other milk was introduced	Urban (Lusaka)		Rural (Keembe)		Total Urban & Rural	
	No.	%	No.	%	No.	%
0-2 months	194	12.0	6	1.5	200	10.4
3-6 months	112	7.4	11	2.7	123	6.4
7 months or over	11	0.7	3	0.7	14	0.7
Not stated	1194	79.0	391	95.7	1585	82.5
Total	1511	100.0	411	100.0	1922	100.0

An investigation into the age at which other foods are introduced during breastfeeding is summarized in Table 12.

Table 12: Age at which other foods were introduced during breastfeeding

Age at which other foods are introduced	Urban (Lusaka)		Rural (Keembe)		Total Urban & Rural	
	No.	%	No.	%	No.	%
0-2 months	66	6.8	6	2.0	72	5.7
3-6 months	794	81.9	250	35.7	1044	82.0
7 months or over	109	11.3	37	12.3	146	11.5
Total	969	100.0	301	100.0	1270	100.0
Not stated	576		110		686	
Grand total	1545		411		1956	

These data suggest that most Zambian women introduced other foods during breastfeeding and that they did so mostly after the child was three months old. It is evident that more urban women than rural women introduced other foods during the first two months of life. Since most

Table 13. Percentage distribution of women* by number of times in a day most recent child was breastfed during first three months and by age of women

Age group of women	Urban (Lusaka)					Rural (Chembe)				
	1-3 times	4-7 times	On demand	Total	No. of women	1-3 times	4-7 times	On demand	Total	No. of women
12-14	91.7	-	3.3	100.0	24	90.9	-	9.1	100.0	11
15-19	41.1	0.6	52.3	100.0	109	36.3	5.3	57.9	100.0	30
20-24	16.7	7.2	76.2	100.0	347	21.4	16.1	62.5	100.0	56
25-29	6.5	5.5	83.0	100.0	307	15.5	17.8	63.7	100.0	45
30-34	5.5	4.4	90.1	100.0	252	12.5	15.6	71.9	100.0	64
35-39	9.7	6.7	82.6	100.0	195	15.5	22.4	62.2	100.0	53
40-44	7.7	4.6	87.7	100.0	139	9.1	13.2	72.7	100.0	55
45-49	9.9	4.2	85.9	100.0	71	12.5	10.1	69.4	100.0	73
Total	14.7	5.0	80.0	100.0	1500*	16.5	16.2	65.3	100.0	400*

*Excludes women who did not breastfeed their most recent child.

women already introduced their babies to other foods during breast-feeding, maternal and child health programmes should include nutritional courses which will educate mothers on the most nutritious food supplements for their babies, the most hygienic ways of preparation and storage and the most appropriate ages for introducing various supplementary foods.

The duration of the breastfeeding period is usually very dependent on the intensity of breastfeeding. Although many studies including the World Fertility Survey have collected information on the duration of breastfeeding, few studies have investigated the daily frequency of breastfeeding. However, medical evidence indicates that the intensity of breastfeeding determines the quantity of breast milk produced. In this survey, women were asked how often they breastfed their most recent child during the first three months of the child's life. These data are summarized in Table 13 by mother's age. Although it is obvious that more rural than urban women might have been uncertain of the number of times in a day they breastfed their children, the high proportion of women who indicated that they breastfed on demand corroborates the suggestion made earlier that breastfeeding is widespread among urban and rural women. The very high percentage of women who breastfed their children more than four times daily support the evidence that most women breastfeed their children for durations exceeding one year. These data also suggest that few women restrict the number of times they breastfeed during the first three months of the child's life.

Although Zambian women breastfeed for relatively long periods, information on age at which children began feeding on normal family meals (Table 14) suggests that over half the women interviewed feed their children on normal family meals before the children are one year old. The data on Table 14 also suggest that rural children are fed on normal family meals at younger ages than their urban counterparts.

Table 14. Age at which child began feeding on normal family meals

Age when child began feeding on normal family meals	Urban (Lusaka)		Rural (Keembe)		Total	
	No.	%	No.	%	Urban & Rural	%
Less than 6 months	35	3.0	13	5.4	48	4.1
6-12 months	466	50.1	124	51.0	590	50.3
13 months and over	425	46.1	106	43.6	534	45.6
Total	929	100.0	243	100.0	1172	100.0
Not stated	621		171		792	
Total	1550		414		1964	

Finally, mothers were asked to state the type of weaning foods they gave their most recent child. This information which is summarized in Table 15 show that the majority of women in rural and urban areas use mostly cereals as weaning foods.

Table 15: Percentage distribution of women by type of weaning foods given to most recent child

Type of weaning food	Urban (Lusaka)	Rural (Keembe)
Cereals	40.9	52.4
Cereals plus other carbohydrates	16.6	9.3
Cereals, vegetables, fruits & dairy products	37.7	31.4
Others	3.7	0.7
Not stated	1.1	6.2
Total	100.0	100.0
Number of respondents	1247	353

Thus only 37.7 per cent of Lusaka and 31.4 per cent Keembe women gave their children a mixed diet of cereals; vegetables, fruits and dairy products as weaning foods. The number of women who cited "fanta" as a weaning food during the interviews suggests that there remains widespread ignorance of what constitutes nutritious weaning foods among both urban and rural women in Zambia. The intensification of health and nutritional programmes should incorporate activities aimed at improving women's knowledge in this area. There is no doubt, however, that the type of weaning foods given to children are also determined by resources of the family.

V. Sexual abstinence

Many studies in African societies have identified the practice of sexual abstinence especially during the postpartum period as an important factor contributing to longer than expected birth intervals in these societies 1/. In order to find the extent of women's knowledge about this practice, women covered in this survey were asked whether there were times "during marriage when couples should abstain from sexual relations". They were also asked whether "people adhere to these practices". The data presented in Table 16 show that most women in Lusaka and Keembe (94.7 & 94.5 per cent respectively) knew about times when couples should abstain from sexual relations. Although this relatively high percentage does not indicate actual practice of sexual abstinence it is clearly a pointer to the existence of the practice. Thus only 1.5 per cent of women stated that they did not know about the practice. An overwhelming majority of Keembe women (96.7 per cent) thought that people strictly

1/ Orubuloye I.O., op. cit

"adhere to these practices" while the corresponding percentage for Lusaka women was 80.4. It is interesting that only 1.3 and 2.8 per cent of women in Keembe and Lusaka respectively indicated that "these practices" were generally ignored.

Table 16: Distribution of women by knowledge about incidence of sexual abstinence

REPLY	LUSAKA		KEEMBE	
	Number	Per cent	Number	Per cent
Yes	1654	94.7	451	94.5
No	26	1.5	0	1.7
Don't know	67	3.8	10	3.8
Total	1747	100.0	477	100.0
Not stated	892		143	
Number of women	2639		620	

However, when these women were asked for how long couples, in their societies were expected to abstain from sexual relations after childbirth, they suggested relatively short periods. This information which is presented in Table 17 shows that expected duration of postpartum abstinence was shorter for rural Keembe than Lusaka. Thus 77.5 per cent Lusaka and 83.8 per cent Keembe women suggested a period of six months or less. In fact a third of the Keembe women interviewed suggested a shorter duration of under three months. The corresponding per cent for Lusaka was 10.6 per cent. Postpartum abstinence periods of over one year were suggested by only 8.6 per cent Lusaka and 8.9 per cent Keembe women.

An investigation of the duration of postpartum sexual abstinence for the last closed birth interval appeared to support evidence in Table 17. The data presented in Table 18 suggest that the mean duration of postpartum abstinence was relatively short in both urban & rural survey areas in Zambia. Contrary to Expectation the mean duration of 3.7 months in Keembe was much shorter than in Lusaka (5.2 months).

Table 17: Distribution of women by expected length of postpartum abstinence

Duration in months	LUSAKA		KEEMBE		TOTAL	
	Number	Per cent	Number	Per cent	Number	Per cent
Up to 3 months	177	10.6	156	33.6	333	15.6
3-6 months	1113	66.9	233	50.2	1346	63.3
7-11 months	123	7.7	13	2.8	141	6.6
12-23 months	97	5.8	23	5.0	120	5.6
24 months and over	46	2.8	13	2.8	64	3.0
Don't know	104	6.2	21	4.5	125	5.9
Total	1665	100.0	464	100.0	2129	100.0
Not stated	975		154		1129	
Mean duration	6.0		4.93		5.74	

Younger women reported shorter durations than older women in urban and rural areas.

This evidence contrasts widely with the very long periods of postpartum sexual abstinence reported in several studies among the Yoruba of Western Nigeria, the Zulu of South Africa and the Guere of Ivory Coast 1/. In fact neither the expected duration nor the actual experienced duration of postpartum sexual abstinence reported by these women suggests that this practice could have an important role to play in lengthening the birth interval in urban or rural communities in Zambia. Similar evidence of short durations of postpartum abstinence have been reported among the orthodox Christians of Ethiopia and among populations in the rural area of Gine in Senegal 2/. In Ethiopia, abstinence was limited to the duration between birth and the baptism of the child (40 days for a boy and 30 days for a girl), although lactation lasted for up to three years. In the rural area of Gine in Senegal abstinence lasted for about two months in contrast to a breastfeeding duration of 24.3 months. Surveys in rural areas of Ghana and Togo have reported durations of

1/ - P.O. Ohadike, Social and Economic Functions of Child Spacing
Op. Cit., pp 6-10

- J.C. and Pat. Caldwell, The Role of Marital Sexual Abstinence
in Determining Fertility: A Study of the Yoruba in Nigeria,
Population Studies Vol. 31 No. 2, July 1977, pp. 193-217.

2/ - P.O. Ohadike, Op. cit., pp. 3-9

Table 10: Distribution of women by duration of postpartum sexual abstinence and age for the last closed birth interval

Duration of abstinence	Age of women												Total	
	15-19		20-24		25-29		30-34		35-39		40-49			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<u>Urban (Lusaka)</u>														
0-1 month	2	4.1	12	4.6	12	4.2	7	2.9	7	3.7	9	5.0	49	4.0
2 months	4	8.2	24	9.1	33	11.5	30	12.3	13	6.9	11	6.1	115	9.5
3 months	9	13.4	68	25.8	44	15.4	40	19.7	34	18.0	29	16.0	232	19.1
4 months	9	12.4	39	14.8	52	18.2	44	18.0	26	13.3	27	14.9	197	16.3
5 months	3	6.1	36	13.7	34	11.9	29	11.9	21	11.1	15	8.3	318	11.4
6 months	11	22.4	59	22.4	74	25.9	54	22.1	45	23.5	51	28.2	294	24.3
7-9 months	5	10.2	14	5.3	18	6.3	30	12.2	23	11.9	16	8.8	101	8.3
10 months and over	6	12.2	11	4.2	19	6.6	12	4.9	15	7.9	23	12.7	36	7.1
Total	49	100.0	263	100.0	286	100.0	244	100.0	189	100.0	181	100.0	1212	100.0
Not stated	83		53		17		6		6		9		174	
													Mean = 5.2 months	
<u>Rural (Keeembe)</u>														
0-1 month	2	15.4	9	25.0	5	13.5	9	14.1	12	22.2	17	15.5	54	17.2
2 months	6	46.2	5	13.9	4	10.0	1	20.1	7	13.0	17	15.5	57	18.2
3 months	1	7.7	5	13.9	17	45.9	10	20.3	7	13.0	29	26.4	72	22.9
4 months	1	7.7	2	22.2	3	8.1	9	14.1	13	24.1	24	21.8	50	18.5
5 months	-	-	-	-	3	8.1	7	10.9	7	13.0	5	4.5	22	7.0
6 months	2	15.4	4	11.1	2	5.4	4	6.3	6	11.1	11	10.0	29	9.2
7-9 months	1	7.7	4	11.1	2	5.4	3	4.5	-	-	2	1.8	12	3.8
10 months & over	-	-	1	2.8	1	2.7	1	1.6	2	3.7	5	4.5	10	3.2
Total	13	100.0	36	100.0	37	100.0	64	100.0	54	100.0	110	100.0	314	100.0
Not stated	32		14		7		3		3		9		60	
													Mean = 3.7 months	

6 and 9.7 months respectively and urban surveys in Nigeria have reported longer durations of abstinence: 15.9 months for Lagos and 22 months for Ibadan ^{1/}.

Most Zambian women know about the practice of postpartum sexual abstinence and understand the reasons why couples have to abstain. These reasons presented in Table 19 suggest that the wellbeing of the child is a paramount reason for couples maintaining the practice. Thus 48.6 per cent of Lusaka and 58.2 per cent Keembe women gave reasons related to the wellbeing of the child. It was quite surprising that more urban women attached greater importance to social stigma attached to pregnancy soon after childbirth than rural women. By far the most important reason given by women in Lusaka for practising postpartum abstinence was the avoidance of public ridicule. On the contrary only 16.2 per cent of the Keembe women abstained to avoid public ridicule.

Table 19: Distribution of women by reasons for the practice or non-practice of sexual abstinence after child birth

REASON	LUSAKA		KEEMBE		TOTAL	
	Number	Per cent	Number	Per cent	Number	Per cent
Child may not die	66	4.9	66	15.3	132	7.4
Child may grow normally	100	13.4	17	3.9	197	11.1
Something bad may happen to child	61	4.5	42	9.7	103	5.8
To have a healthy baby and let the mother get well	346	25.0	129	30.0	475	26.8
Couple will be ashamed to face public if the woman gets pregnant	415	31.0	70	16.2	485	27.4
Other reasons	128	9.5	76	17.7	204	11.5
Don't know	147	10.9	31	7.2	170	10.0
Total	1342	100.0	431	100.0	1774	100.0
Not stated	946		178		1124	
Grand total	2289		609		2898	

^{1/} Orubuloye I.O., op.cit., p. 501

It is significant to note that women in Lusaka and Keembe did not state the fear of getting pregnant as a major reason for practising sexual abstinence after child birth. A majority of these women, however, thought that couples should have sexual relations during breastfeeding. The data presented in Table 20 show that 63.6 per cent of Lusaka women and 66.4 per cent of Keembe women thought coitus was normal during breastfeeding. This view is consistent with the reported short duration of postpartum sexual abstinence of five to six months.

Table 20: Distribution of women by whether they think couples should have sexual relations during breastfeeding

RESPONSE	LUSAKA		KEEMBE		TOTAL	
	Number	Per cent	Number	Per cent	Number	Per cent
Yes	1096	63.3	311	66.4	1407	64.2
No	536	31.1	132	28.1	668	30.5
Don't know	91	5.3	26	5.5	117	5.3
Total	1723	100.0	469	100.0	2192	100.0
Not stated	916		150		1066	
Total	2639		619		3258	

The reasons for this rather tolerant attitude to postpartum coitus are presented in Table 21. These data suggest that more than a third of the women interviewed did not consider sexual relations during breastfeeding harmful to the child. This proportion was much higher for Keembe women (56.9 per cent). A major reason for favouring sexual relations during breastfeeding among Lusaka women was the fear that husbands would go out with other women. This was not a major consideration among Keembe women. This appears to reflect the relatively low incidence of polygamy in the two communities.

Table 21: Distribution of women by reasons why couples should have sexual relations during breastfeeding

REASON	LUSAKA		KEEMBE		TOTAL	
	Number	Per cent	Number	Per cent	Number	Per cent
No effect on the child	359	30.2	191	56.9	550	36.0
It gives more milk	9	0.6	-	-	9	0.6
Husband may go out with other women	433	36.3	33	9.3	471	30.9
It is our custom	38	3.2	7	2.1	45	3.0
Other reasons	176	15.0	71	21.1	249	16.3
Don't know	167	14.0	34	10.1	201	13.2
Total	1139	100.0	336	100.0	1525	100.0
Not stated	923		153		1076	
Grand total	2112		439		2601	

VI. Conclusion

This study demonstrates that nearly all urban and rural women in Zambia breastfeed their children from birth and do so for relatively long periods. They are as likely to breastfeed their first children as they are to breastfeed subsequent ones. The data suggest that the duration of breastfeeding was the same irrespective of birth order. The mean duration of breastfeeding was, however, higher in Keembe than Lusaka. Thus the duration of breastfeeding the first child, the child born before the last and the most recent child was 17 months in Keembe compared to about 15 months for Lusaka.

Since a quarter of these women reported using contraceptives, the length of the birth interval for some of them was influenced by contraceptive use. The birth interval recommended by Lusaka women (24.6 months) was longer than that by Keembe women (20 months) although both were shorter than expected if allowance is made for a gestation period of about ten months.

The evidence from this study suggests that the major determinant of the birth interval among Zambian women was the duration of breastfeeding and not the duration of postpartum sexual abstinence as has been suggested by some studies in Nigeria and elsewhere. The mean duration of postpartum sexual abstinence was relatively short; 6 months for Lusaka and 5 months for Keembe. The expected duration of breastfeeding as recommended by women covered in the survey was, however, much longer than the observed duration. Although breastfeeding is universal practice in Lusaka and Keembe, its intensity varied by place of residence. Keembe women breastfed more intensively and for longer duration than Lusaka women.

This urban-rural difference in breastfeeding was explained to some extent by differences in timing the introduction of other milk and supplementary foods during breastfeeding. While about a fifth of all Lusaka women introduced other milk in the first six months of breastfeeding only 1.5 per cent Keembe women gave their babies other milk during the same period. Women from both areas, however, introduced other foods quite early during the first six months. It was however noted that more Lusaka than Keembe women breastfed on demand. This was probably due to the fact that rural women spent daily more time away in the farms than their counterparts in urban where the majority of whom were not engaged in regular employment. On the whole few women restricted the number of times daily they breastfed during the first three months of life.

More than half the number of women interviewed started feeding their children on the regular family meal before the children were one year old. During the weaning period, children were fed on a predominantly carbohydrates diet although 37.7 per cent of Lusaka and 31.4 per cent of Keembe women gave their children a mixed diet of cereals, vegetable, fruits and dairy products.

Knowledge of length of time when couples were expected to abstain from sexual relations was universal and a majority of women indicated that couples strictly adhered to these practices. The evidence however suggests shorter expected durations of postpartum abstinence than have been reported for the Yoruba of Nigeria, the Zulu of South Africa or the Guere of Ivory Coast. Neither the expected duration nor the actual experienced duration of postpartum sexual abstinence reported by these women suggests that this practice could contribute to lengthening the birth interval in urban and rural areas in Zambia.

The baby's health and well-being is paramount in determining the duration of breastfeeding and the practice of postpartum abstinence although more urban than rural women abstain from sex to avoid public ridicule. It was rather surprising that the fear of getting pregnant was not given as a major reason for practising sexual abstinence after childbirth. Consequently, 63.3 per cent Lusaka and 66.4 per cent Keembe women thought couples should have sexual relations during breastfeeding. Over half of the Keembe women and a third of Lusaka women who approved of the practice thought it would have no effect on the child. Over a third of those who approved of it in Lusaka expressed the fear that husbands would go out with other women if they objected to the practice.

It would therefore appear that any reductions in the duration of breastfeeding in the process of social change in Zambia would lead to significant reductions in birth intervals unless some other methods are used to prolong it. Since closely spaced births tend to be associated with higher maternal and child mortality and morbidity, reductions in the birth interval under existing living conditions in Zambia would aggravate the mortality situation. While shorter birth intervals may contribute to higher child death, it should also be noted that a short interval between births can sometimes be the result rather than the cause of child mortality. The findings of this analysis emphasize the need for more detailed investigations on the impact of varying intervals between births and child and maternal morbidity and mortality. The importance of such studies cannot be overemphasized since higher parity tends to be associated with shorter mean birth intervals and because effects attributed to shorter intervals are probably reflections of the biological risks of high parity or other social negative influences of large families.

Knowledge, Practice and Attitude to Birth Regulation
among Zambian women

I. Introduction

In all human societies, the maximum number of children a woman bears in her life-time is significantly lower than the biological maximum possible. Thus many researchers have investigated the reasons why "high fertility rates are so low". Among many of the causal factors identified, age at first marriage among women is considered a major determinant of ultimate fertility. It has been observed that early marriage exposes women to longer durations of the "risk" of child bearing. Women who marry later tend also to be more educated and engage in socio-economic activities which are not always compatible with continuous childbearing.

A second significant factor determining the level of fertility in any society is the extent to which couples or women decide on the timing and frequency of childbirth. This factor in turn depends on the availability of appropriate and socially approved technology for regulating the timing and frequency of births.

This paper examines the extent to which women in urban and rural communities in Zambia know about birth regulation methods and their attitudes to the use of these methods. It investigates the extent to which these women have used fertility regulation methods in the past, why they used them and whether they will use them in future. The paper examines differences in the knowledge, attitude and practice of birth regulation by marital status, age and education of women.

Sources of data

During the first round of this survey, information was obtained on methods of birth regulation women knew and which of these methods they had used before. Those who had practised birth regulation before were asked to say why they did so. Those who had never practised contraception before were asked whether they will use any of the method if recommended by a doctor. Those who said they will not were asked to state the reasons. These data were crosstabulated with data on the demographic and social characteristics of women and have been used in this analysis. Information on couple interaction in fertility regulation collected in the third round of this survey is also used. These data exclude girls whose parents did not authorise an interview on this subject.

Knowledge of Birth Regulation Methods

When women were asked to state what birth regulation methods they knew, 62.7 percent of Lusaka and 66.1 percent of Keembe women said they knew no methods. The percentages of those who knew some methods are presented in Table 1. These data show that for nearly all age groups the pill was the

most widely known method. More Keembe females (22.9 per cent) in the 15-19 year age group knew this method than Lusaka females (12.9 per cent). This higher rural than urban percentage was obviously the result of earlier rural than urban marriage among girls in this age group. It was probably also due to the active maternal and child health and primary health programmes being developed in the rural area of Keembe. Traditional methods of birth regulation ranked second to the pill as the most widely known method.

In general, knowledge of birth regulation methods was higher among women aged 25-34 years. However, knowledge of both the pill and traditional methods was more widespread among Keembe women aged 40-49 years. It is not clear whether these differences reflect greater self confidence among rural than urban women to discuss these subjects freely or whether they reflected reality. A distribution of women by marital status and knowledge of birth regulation methods is presented in Table 2.

Table 1. Percentage distribution of Women by age group and methods of birth regulation known.

Methods of birth regulation known	Age Group of Women							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Lusaka								
Pill	8.8	15.8	16.5	12.6	6.3	4.7	5.9	11.9
Pill plus other methods*	4.1	5.3	8.2	9.0	8.3	8.3	0.8	6.9
Other methods**	0.9	4.0	6.1	4.8	3.9	5.1	0.9	4.1
More than two methods	1.8	4.7	8.7	8.7	9.0	2.9	2.5	6.3
Traditional	7.4	6.1	8.3	5.9	9.7	11.7	16.0	8.1
Don't know	77.0	64.1	52.2	59.0	62.8	67.3	73.9	62.7
Number of Women	222	512	448	390	288	171	119	2150
Kcembe								
Pill	16.7	15.8	11.9	8.1	6.7	9.0	7.6	10.2
Pill plus other methods*	6.2	7.9	4.8	9.1	5.6	10.3	4.8	6.8
Other methods**	-	-	-	1.0	1.1	1.3	1.0	0.9
More than two methods	-	1.3	4.8	2.0	2.2	1.3	-	1.7
Traditional	6.3	7.9	13.1	15.2	15.7	19.2	18.1	14.3
Don't know	70.8	67.1	65.5	64.6	68.5	59.0	68.6	66.1
Number of women	48	76	64	99	89	78	105	579

* Pill plus other methods in Lusaka is mainly pill plus injection while in rural area it is pill plus traditional.

** refers to I.U.D., Condom, injection, foam tablets plus a combination of these.

Table 2. Percentage distribution of women by marital status and methods of birth regulation known.

Lusaka						
Methods of birth regulation known	Marital Status					Total
	Never married	Married	Separated	Divorced	Widowed	
Pill	16.1	11.9	10.0	11.6	8.9	11.9
Pill plus other methods	3.2	7.1	--	7.1	8.8	6.9
Other methods	3.3	4.0	5.0	6.9	2.3	4.1
More than two methods	3.2	6.2	5.0	10.5	4.4	6.3
Traditional	6.5	8.2	5.0	5.8	8.9	8.1
Don't know	67.7	62.6	75.0	58.1	66.7	62.7
Total	31	1968	20	86	45	2150

Keembe						
Pill	-	10.5	10.0	8.8	10.7	10.2
Pill plus other methods	-	7.0	-	7.4	7.1	6.8
Other methods	-	0.6	-	1.4	3.7	0.9
More than two methods	-	1.5	20.0	1.5	-	1.7
Traditional	14.3	15.2	10.0	11.8	7.1	14.3
Don't know	85.7	65.2	60.0	69.1	71.4	66.1
Total	7	466	10	68	28	579

The data show that 32.3 per cent of all never married women in Lusaka knew about existing birth control methods 1/. Only one of the seven unmarried Keembe women interviewed knew of any method - the traditional method only. More never married women in Lusaka knew about the pill than married, separated, divorced or widowed women. Most separated, divorced and widowed women in Lusaka reported that they did not know any birth regulation methods. These data suggest widespread ignorance of birth regulation methods among women in the survey areas. Although some women might not have mentioned methods they had heard of, they probably did not know enough to discuss about the method.

Analysis of these responses by women's level of education presented in Table 3 suggests that the higher a woman's education the more knowledge she had of birth regulation methods.

Table 3. Percentage distribution of women by educational level and methods of Birth regulation known.

Lusaka						
	Educational level					Total
	None	Grades 1-4	Grade 5	Secondary Form 1-2	Secondary Form 3 & Higher	
Pill	4.7	9.2	12.2	24.9	25.5	11.9
Pill plus other methods	4.4	6.2	6.8	11.0	12.0	6.9
Other methods	3.3	3.2	4.7	7.4	4.6	4.1
More than two methods	1.5	3.0	6.3	13.9	20.4	6.3
Traditional	13.1	9.9	6.0	2.9	1.4	8.1
Dont't know	73.0	68.5	64.0	39.9	36.1	62.7
Total	548	533	680	173	216	2150
Keembe						
Pill	7.2	9.0	19.5	-	-	10.2
Pill plus other methods	5.2	11.0	5.9	-	-	6.0
Other methods	-	2.0	0.9	-	-	0.9
More than two methods	1.3	1.3	3.4	-	-	1.7
Traditional	18.0	13.5	5.9	-	-	14.3
Don't know	68.3	63.2	64.4	-	-	66.1
Total	306	155	118	-	-	579

1/ Studies in Kenya and Lesotho show higher levels of knowledge of birth regulation methods.

Even Keembe women with only primary education knew more about birth regulation methods than their illiterate counterparts. It is particularly significant that only 36.1 per cent of Lusaka women with secondary form III and higher education said they did not know of birth regulation methods. These data also show that while educated women were more conversant with modern methods of birth regulation, illiterate women knew more of traditional than modern ones.

IV. Use of Birth Regulation Methods

9. The data in Table 1 showed that 18.8 per cent Lusaka and 17.0 per cent Keembe women knew about the pill. When these were asked if they had ever used any birth regulation methods, only 15.2 per cent Lusaka and 16.4 Keembe women reported having ever used the pill. On the whole, data presented in Table 4 suggest higher use of birth regulation methods among urban than rural women. This is particularly the case among women aged 25-34 years. In Lusaka and Keembe more older women than younger ones used traditional methods.

Table 4: Percentage distribution of women by method of birth regulation ever used and by age group:

Methods ever used	Age Group							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Pill	9.2	17.0	18.3	20.8	10.8	9.9	6.7	15.2
Traditional	4.6	2.7	4.0	3.3	6.3	8.2	6.2	4.4
Injection, injection + other methods	-	1.4	1.9	3.6	2.0	1.8	0.8	1.8
Other methods	2.9	4.1	5.9	4.9	5.2	2.9	3.1	4.5
None	83.3	74.8	69.9	67.4	75.7	77.2	83.2	74.1
Total	222	512	448	390	288	171	119	2150

Keembe								
Pill	31.2	14.5	14.3	15.2	14.6	14.1	17.1	16.4
Traditional	2.1	6.6	4.8	3.0	7.9	7.7	7.6	5.9
Other Methods	-	1.3	-	1.0	1.1	3.8	1.0	1.2
None	66.7	77.6	80.9	80.9	78.4	74.4	74.3	76.5
Total	48	76	84	99	89	78	105	579

These data are presented in Table 5 by marital status of women.
Table 5. Percentage distribution of women by Marital Status and birth regulation methods ever used.

M Method used	Marital Status					Total
	Never married	Married	Separated	Divorced	widowed	
Lusaka						
Pill	12.9	15.2	10.0	16.3	13.3	15.2
Traditional	-	4.6	-	3.5	2.2	4.4
Injection plus	-	1.8	5.0	5.8	-	1.8
Other methods	3.2	4.5	5.0	4.6	2.3	4.5
Don't know	83.9	73.9	80.0	69.8	82.2	74.1
Total	31	1968	20	86	45	2150
Keembe						
Pill	-	17.0	10.0	13.2	21.4	16.4
Traditional	14.3	5.8	-	8.8	-	5.9
Other methods	-	1.2	-	1.5	-	1.2
Don't know	85.7	76.0	90.0	76.5	78.6	76.5
Total	7	466	10	68	28	579

10. It would be observed from these data that while urban never-married women used the pill, their counterparts used only traditional methods. More widows in Keembe than in Lusaka used the pill. The data show that 26.1 per cent Lusaka and 24 per cent Keembe married women had used a birth regulation before and that the majority of these women had used the pill.

11. Data on use of birth regulation methods by level of education are presented in Table 6 show that practice of birth regulation was related to women's education. Thus the higher a woman's education the more likely she was to have practised birth regulation. It would be noted therefore that more women with secondary or higher education had used birth regulation methods than illiterate women. The incidence of use of the pill was higher among women with secondary form III or higher education (37.5 per cent). It is worth noting that more illiterate rural than urban women used the pill.

Table 6: Percentage distribution of women by educational level and birth regulation methods ever used.

Methods ever used	Lusaka					
	Educational level					Total
	None	Grades 1-4	Grade 5	Secondary Form 1-2	Secondary Form 3 and Higher	
Pill	5.7	7.9	17.1	32.4	37.5	15.2
Traditional	6.2	6.8	2.5	2.3	1.8	4.4
Injection, Injection plus other methods	1.1	1.7	1.7	4.6	2.3	1.8
Other methods	2.1	2.4	4.9	10.4	8.9	4.5
None	84.9	81.2	73.8	50.3	49.5	74.1
No. of women	548	533	680	173	216	2150

Keembe						
Pill	14.4	16.1	22.0	-	-	16.4
Traditional	7.5	4.5	3.4	-	-	5.9
Other methods	0.3	2.6	1.7	-	-	1.2
None	77.8	76.8	72.9	-	-	76.5
No. of women	306	155	118	-	-	579

Data on methods of birth regulation used and mean parity as given in Table 7 shows that women who used the pill had a lower mean parity than those who used other methods or no method at all. In Keembe, women who used no method and those who used traditional methods had about the same high levels of fertility although the majority of women were non-users. In Lusaka, women who used no method had a lower mean parity than those who used traditional and "other methods". It would appear that women who used no method of birth regulation included women with low parity or sub-fecund women who were not interested in using any birth regulation methods at the time of the survey. The high parity among women who used traditional methods suggests that these methods were used for child-spacing purposes and not for birth control reasons and therefore their parity at ages close to menopause were consequently high. It might have been also due to the small number of women who had used these methods. It will be also observed from Table 7 that the category "not stated" had the lowest parity. This category of women were likely to be young women and thus their mean parity was accordingly low.

Table 7. Percentage distribution of women by methods of birth regulation used and mean parity.

Methods used	Number of women	Lusaka	Keembe
	Mean parity		
Pill	No. of women	316	70
	Parity	4.78	5.0
Pill plus			
other methods	No. of women	23	-
	Parity	4.91	-
Other methods	No. of women	76	-
	Parity	5.57	-
Traditional	No. of women	90	30
	Parity	6.12	6.6
None	No. of women	14.43	397
	Parity	5.10	6.2
Not stated	No. of women	103	34
	Parity	2.63	2.56
Total	No. women	2051	531
	Parity	4.94	5.92

Reasons women gave for practising birth regulation

Although women differing in economic, social and cultural situations may use birth regulation method, the reasons for the use or non-use of one or all available methods are usually not always the same. Women in this survey were asked why they thought women practised birth regulation. Their responses are presented in Table 8.

Table 8. Percentage distribution of women by age group and why women use birth regulation methods

Why practise birth regulation	Age group							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-50	
To avoid pregnancy	89.2	82.8	76.8	78.2	85.8	86.5	92.4	82.6
To space births	9.5	14.6	21.2	18.5	11.8	11.7	15.9	15.1
Other	1.3	2.6	2.0	3.3	3.4	1.8	1.7	2.3
Total	222	512	448	390	288	171	119	2150

Keembe								
To avoid pregnancy	83.3	89.5	91.7	93.9	91.0	91.0	88.6	90.3
To space birth	16.7	9.2	5.9	6.1	9.0	6.4	10.5	8.6
Other	-	1.3	2.4	-	-	2.6	0.9	1.1
Total	48	76	84	99	89	73	105	579

The data suggest that most women practised birth regulation to avoid pregnancy. More women in the age group 40-50 years in Lusaka saw the avoidance of pregnancy as a major reason for using contraceptives. The spacing of births was listed as a major reason by more women in the age group 25-34 years than women in other age groups in Lusaka. Childspacing was also listed by 16.7 per cent of Keembe women in the age group 15-19 years.

Table 9. Percentage distribution of women by Marital Status and why women practise birth regulation. _

Why Practise birth regulation	Marital Status					
	Never married	Married	Separated	Divorced	Widowed	Total
To Avoid Pregnancy	80.6	82.4	<u>Lusaka</u> 9090.0	82.6	88.9	82.6
To space births	12.9	15.5	10.0	10.5	8.9	15.1
Other	6.5	2.1	-	6.9	2.2	2.3
Total	31	1968	9	86	45	2150
<u>Keembe</u>						
To avoid pregnancy	85.7	91.0	90.0	89.7	82.1	90.3
To space births	-	8.4	-	8.8	17.9	8.6
Other	14.3	0.6	10.0	1.5	-	1.1
Total	7	466	10	68	28	579

These data which are summarized by marital status in Table 9. suggest that preventing pregnancy is the major reason given for contraceptive practice. The second related reason is spacing births. It is however interesting to note that other reasons were advanced by more Lusaka than Keembe women although this varied by marital status.

Table 10. Percentage distribution of women by educational level and why women practise birth regulation.

Lusaka						
Why practise birth regulation	Educational level					Total
	None	Grades 1-4	Grade 5	Secondary Form 1-2	Secondary Form 3 & higher	
To avoid pregnancy	92.2	89.9	82.1	61.3	61.1	8286.6
To space birth	8.4	8.4	15.4	32.9	32.9	1514.1
Other	0.4	1.7	2.5	5.8	6.0	2.3.3
Total of women	548	533	680	173	216	215050

Keembe						
To avoid pregnancy	92.5	89.0	86.4	-	-	9093.3
To space birth	7.2	9.0	11.9	-	-	8.6
births						8.6
Other	0.3	2.0	1.7	-	-	1.1.1
Total of women	306	155	118	-	-	57939

An analysis of the data on reason why women practice birth regulation by educational level is presented in Table 10. The data suggest that more educated women tended to perceive child-spacing as a reason for using contraceptives than illiterate women who overwhelmingly specified prevention of pregnancy as the reason for using contraceptives.

It is worth noting that women do not mention the limitation of the number of children as a reason for contraception. The evidence presented in this analysis suggests that women conceive contraception as a method of regulating the timing and frequency of births.

Indications of whether these women would practise birth regulation if contraception was recommended by a doctor are contained in the data presented in Table 11.

Table 11. Percentage distribution of women by age group and whether they will practise birth regulation if recommended by a doctor.

Lusaka								
Will you use birth regula- tion if recom- mended	Age Group							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Yes	63.5	71.9	75.2	73.3	68.8	59.1	38.7	68.7
No	36.5	23.1	24.8	26.7	31.2	40.9	61.3	31.3
Total	222	512	448	390	288	171	119	2150
Keembe								
Yes	50.0	68.4	75.0	66.7	74.2	74.4	56.2	67.0
No	50.0	31.6	25.0	33.3	25.8	25.6	43.8	33.0
Total	48	76	84	99	80	70	105	579

These data show that over two thirds of the women in Lusaka and Keembe expressed a willingness to use contraceptives if these were prescribed by a doctor. The number of women who said they would not use contraceptives even if they were prescribed by a doctor increased with age among Lusaka women. Thus 61.3 per cent of Lusaka women aged 45-49 and 24.8 per cent of those aged 25-29 said they will not use contraceptives. The age pattern of these responses was not consistent in the case of Keembe women.

VI. Communication among husband and wife on birth regulation

An important factor affecting the practice of family planning is communication between husband and wife on such matters and other related topics. Information from this survey showed that only one per cent of the women interviewed had ever discussed the use of family planning with their husbands. These women were asked why they did not discuss the subject with their husbands. Their responses are summarized in Table 12.

Table 12: Percentage distribution of women by reason why they did not discuss the use of family planning with husbands.

	Lusaka	Lusaka	Keembe
Don't have children yet	32.3	32.3	11.8
It is against our religion		27.4	39.1
Others		-	0.2
Not stated		3.3	6.2
Not applicable		37.0	42.7
Total		100.0	100.0
Number of women		1800	499

These data show that a major reason for not discussing family planning with husband is the desire for children and the adherence to religious dogma on the subjects. Religion was more a hindering factor in Keembe than in Lusaka.

When these women were asked if they thought having many children affected women's participation in economic life, many Lusaka women thought so. These data summarized in Table 13 indicate that while 62.6 per cent of the females 12-29 in high density areas thought that having many children affected women's participation in economic life. The corresponding figure for Keembe was 25.6 per cent. The percentages of women who thought, that having many children affected women's economic life were higher for urban than rural areas. Only 29.1 per cent Keembe women thought that having many children affected women's economic role in society. This contrasted significant with 65.8 per cent reported for low density women.

Table 13: Distribution of women by whether they thought having many children affected a woman's participation in economic life of the society.

Lusaka (High Density)

AGE OF RESPONDENT IN YEARS	Don't know		Yes		No		No Response		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
12-29	40	8.8	283	62.6	94	20.8	35	7.7	452	100
30-44	3	1.4	137	66.8	61	29.8	4	2.0	205	100
45-50	0	0	23	76.7	7	23.3	0	0.0	30	100
Total	43	6.3	443	64.5	162	23.6	39	5.7	687	100

Lusaka (Low Density)

12-29	7	4.3	98	60.2	47	28.8	11	6.7	163	100
30-44	0	0	56	75.7	17	23.0	1	1.3	74	100
45-50	0	0	6	100.0	0	0	0	0	6	100
Total	7	2.9	160	65.8	64	26.3	12	4.9	243	100

Lusaka (Squatter)

12-29	41	7.8	284	53.9	179	34.0	23	4.3	527	100
30-44	10	3.7	163	59.7	100	36.6	0	0	273	100
45-50	1	2.7	17	45.9	17	45.9	2	5.5	37	100
Not stated	0	0	1	100.0	0	0.0	0	0.0	1	100
Total	52	6.2	465	55.5	296	35.3	25	3.0	838	100

Rural Keembe

12-29	24	10.3	60	25.6	113	48.3	37	15.8	234	100
30-44	5	3.0	54	32.3	102	61.1	6	3.6	167	100
45-50	6	7.5	26	32.5	46	57.5	2	2.5	80	100
Total	35	7.3	140	29.1	261	54.3	45	9.3	481	100

A similar urban/rural difference emerged when women were asked if having children affected their participation in social life. These data summarized in Table 14 indicate that less than a half of Keembe women thought having many children affected their participation in social life. Among Lusaka women more high and low density than squatter women thought having many children affected their participation in social life. It was however noted that a significant number of younger women in Keembe said they did not know whether having many children affected women's participation in economic and social life. This suggests that responses presented in Tables 13 and 14 reflect women's personal experiences. Caring for many children in the urban environment was considered more of a problem than caring for the same number in rural environment.

Table 14:

Table 14: Distribution of women by whether having many children affected a woman's participation in social life.

Lusaka High Density										
AGE GROUP	Don't know		Yes		No		No Response		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
12-29	38	8.4	253	56.1	120	26.6	40	8.9	451	100
30-44	4	2.0	119	58.3	79	38.7	2	1.0	204	100
45-50	0	0.0	23	76.7	7	23.3	0	0.0	30	100
Total	12	6.1	395	57.7	206	30.1	42	6.1	685	100

Lusaka Low Density										
12-29	6	3.7	47	51.5	62.5	68.1	11.1	617	463	100
30-44	00	0.0	52	70.3	21	28.4	1	1.3	74	100
45-50	0	0.0	4	66.6	2	33.3	0	0.0	6	100
Total	6	2.5	140	57.6	85	35.0	12	4.9	243	100

Lusaka Urban Squatter										
12-29	45	8.5	281	53.2	178	33.6	25	4.7	529	100
30-44	12	4.4	163	59.7	95	34.8	3	1.1	273	100
45-50	1	2.7	20	54.1	14	37.8	2	5.4	37	100
Total	58	6.9	465	53.3	287	34.2	30	3.6	840	100

Rural Keembe										
12-29	20	8.6	96	41.1	79	34.0	38	16.3	233	100
30-44	3	1.8	77	46.1	79	47.3	8	4.8	167	100
45-50	3	3.7	40	50.0	35	43.8	2	2.5	80	100
Total	26	5.4	213	44.4	193	40.2	48	10.0	480	100

Conclusion

The evidence presented in this paper shows that urban women knew more about birth regulation methods than rural women. In general, knowledge of birth regulation methods was higher among younger women than older ones. Knowledge of birth regulation methods was also higher among literate than illiterate women. This knowledge increased with increased level about modern methods particularly the pill. In Keembe, single women knew only traditional methods.

Information on usage of birth regulation methods indicated that a very small per cent of urban and rural women had ever used any of the methods discussed. It was however interesting that slightly more Keembe women (16.4 per cent) than Lusaka women (15.2 per cent) had ever used the pill. In Lusaka the use of the pill was so common among never married as among ever married women. This was quite different from the case of Keembe where the pill was used by ever married women only.

The use of birth regulation methods was more common among educated than illiterate women. Thus, it was observed that 37.5 per cent of Lusaka women with Secondary Form III or higher education had used the pill before the survey. This percentage contrasted with 5.7 reported for illiterate Lusaka women. Differential use of birth regulation by educational level was also observed for Keembe women.

Analysis of reasons why women practised birth regulations showed that the majority of women used family planning to avoid pregnancy and that only a small percentage said they used birth regulation methods to space birth. It may well be that these two responses were not mutually exclusive particularly since no women indicated clearly that they had decided they have no more children. This conclusion also relates to reasons advanced by literate and illiterate women.

Among women who had never used birth regulation methods, more Lusaka than Keembe women were willing to use family planning methods if these were prescribed by a doctor. The number of women willing to practice family planning was highest among urban women aged 20-39 years. It was also significant to note that both Lusaka and Keembe never married women were interested in using birth regulation methods.

Analysis of couple communications on family planning showed that most women never discussed such matters with their husbands. Most of them thought birth regulation was against the teaching of their religion. However, most urban women acknowledge the strain that many children had on a woman's ability to participate actively in the economic and social life of society. Women's

Women's economic roles in Keembe did not put such a strain and few of them thought rearing many children affected their ability to participate in the economic and social life of the society.

It would therefore appear that few women in urban and rural area in Zambia recognize family planning as a necessary method for planning the timing and frequency of their births. Family planning among these women is not seen as a method of limiting the number of births they will have.

FAMILY SIZE PREFERENCES AND CHILD-SPACING PATTERNS IN ZAMBIA

Introduction

In Zambia, and many sub-Saharan countries, fertility is still very high and has yet to show any sign of decline. This is so because society places high premium on children and considers a woman's inability to bear children a great tragedy. It is therefore not surprising to find some women going to great lengths in search of solution to their problem of childlessness. The tendency has been to blame the woman for being unable to bear children and marriages are sometimes broken even before any clinical investigation has been undertaken to ascertain the problem. However, research in this area and increased education among men are contributing to a better understanding of the problem.

The importance of the study of family size preferences and child spacing practices can hardly be over emphasized. Firstly, data on birth interval may provide a more sensitive indicator than birth rates or the adoption and use of family planning by women. Secondly, knowledge of family size preferences at least, gives an indication of long-term trends in ultimate fertility and thus improves the reliability of population forecasts. Thirdly, it throws light on the reasons motivating couples towards a given fertility behaviour. Finally, preferences regarding family size could be conceived as influencing actual fertility experience and vice versa. The policy implications are clear.

The purpose of this paper is to attempt to answer the following questions: Do Zambian women have specific ideas about family size in terms of ideal or desired size? Do family size preferences vary according to factors such as urban-rural residence, educational attainment and religion? Do Zambian women know about child spacing practices?

Source of Data:

The data for the present paper are derived from the third round of this survey, which collected basic demographic information on mortality and fertility levels, their socio-economic correlates and on knowledge, attitude and practice of contraception. The third round specifically elicited information on migration, fertility and mortality, value of children and child care needs and socio-economic roles of women. It should be noted that information on child spacing practices was collected in the second-round survey.

Family Size Preferences:

Some evidence exists to show that infant and child mortality and fertility might be related. ^{1/} It is argued that under conditions of high infant and child mortality, fertility tends to be high in order to

^{1/} CICRED 1975. See several articles presented at Seminar on Infant Mortality, in Relation to the Level of Fertility 6-12th May 1975, Bangkok, Thailand.

secure a desired number of children surviving to a particular age. Hence, when mortality falls couples supposedly reduce their fertility since they can achieve the same number of survivors with fewer births. In this survey female respondents were asked to give the reason why they thought "some couples want many children". In addition they were also asked to give reasons for their choice of large family. The results are shown in Table 1. The most prominent reason for couples wanting many children is is to have "company and support in old age". The pattern is the same in the three urban strata except that insurance against deaths occupies a second position in low density areas. Surprisingly, having a large family as an insurance against subsequent deaths does not seem to be as strong a reason as insurance against old age. It may well be that Zambian women are now aware that mortality is declining and there is, therefore, no need to have more children to compensate for those who will not live to become adults. It is interesting to note that quite a negligible proportion thought that "any number is God's gift". It is also to be noted that women gave these same reasons when they were asked to give reasons for their choice of large family.

Table 1: Percentage distribution of women by reasons why they think "couples want many children"

Reason	L u s a k a				Keembe
	Low density	High density	Squatter	Total	
To have company and support in old age	31.2	48.7	49.3	46.6	46.8
To have large family, for prestige, luck, power, etc.	17.3	18.6	21.5	20.0	23.2
Some may die	18.9	9.7	12.3	12.5	11.4
Ignorance, lack of family planning information	4.6	00.4	2.5	2.1	-
Any number is God's gift	3.8	3.7	1.7	2.6	2.3
Other reasons	14.8	9.3	6.0	8.2	9.5
Do not know	9.4	9.6	6.7	8.0	6.8
Not stated	18	47	32	97	31

Respondents were also asked to indicate what they considered to be a large family. The results are presented in Table 2. The figures show that large-family norms are prevalent in Zambian society where a large family was conceived of as comprising almost 10 children, while a small family was considered to be 4.1 and 3.5 children in urban and rural areas respectively. The proportions of women giving this answer were 65.3 and 72.6 percent in urban and rural areas respectively. For a small family comprising 4 children the corresponding figures were 65.7 and 78 percent. It is seen that the mean number of children is the same for both urban and rural areas although the rural areas registered the lowest mean in the 12 - 14 age group. In general, the mean number of children increases with age of women. As expected, the mean number of children was lower in the low density areas than in both the high density and squatter areas.

Table 2: Mean number of children in what women considered to be a large family by age group of women

Age-Group	L u s a k a				Keembe
	low density	high density	Squatter	Total	
12-14	8.92	9.44	9.14	9.21	8.37
15-19	8.45	9.21	9.59	9.26	9.34
20-24	8.49	9.44	10.26	9.86	9.98
25-29	8.62	9.75	10.11	9.81	9.91
30-34	9.04	9.85	10.54	10.09	10.25
35-39	9.68	10.45	10.74	10.57	10.55
40-44	10.84	10.79	11.05	10.94	11.12
45-49	9.29	10.86	10.87	10.46	10.37
Total	8.88	9.78	10.19	9.88	9.99

These women were also asked to indicate what they considered to be a small family. Table 3 shows that urban women consider a family of 4.1 children as small as against 3.5 children for rural women. Again the mean number of children increased with age of women. The size of family conceived as small by younger women is smaller than that by older women. It must be noted, however, that the older women completed childbearing under socio-economic experiences different from those of younger women who have just started their reproductive life. In Lusaka, squatter areas registered the largest mean number of children women thought should be in a small family. It is interesting to note that what Zambian women consider as small family is still indicative of a prevailing tendency toward high fertility. However, almost half of urban women thought that in view of rising cost of living, feeding, clothing and housing related to child care, there was need to have a smaller family. It is curious to note that the average of the means in Tables 2 and 3 correspond to the total fertility rates calculated for Lusaka and Keembe, 6.6 and 7.6 respectively.

Table 3: Mean number of children by age group of women
(small family)

Age Group	L u s a k a				Keembe
	Low density	High density	Squatter	Total	
12-14	3.51	3.22	3.86	3.55	3.11
15-19	3.71	3.74	3.92	3.82	3.17
20-24	3.59	4.26	4.29	4.21	3.40
25-29	3.56	4.01	4.31	4.13	3.88
30-34	3.93	4.38	4.44	4.33	3.63
35-39	3.24	4.37	4.34	4.25	3.87
40-44	3.68	4.66	4.45	4.46	3.74
45-49	4.14	5.03	4.63	4.72	3.40
Total	3.65	4.07	4.25	4.12	3.50

Data on mean number of children wanted by age group of women presented in Table 4 shows that rural women wanted more children than their urban counterparts; 7.2 as compared to 6.6. Similar evidence has been reported for South-Western Nigeria. ^{sen}1/ In the urban areas, the number wanted varied from 6 children in low density areas to 6.9 in squatter areas. As already noted, the mean number of children increases with age of women. These results corroborate WFS findings concerning desired family size. It was thought that these findings reflect a rationalization of achieved fertility, which increases with age, rather than a trend towards ideals of a small family size among younger cohorts. 2/

1/ G.M. Faroog, I.I. Ekanem and M.A. Ojalade, Family Size preferences and Fertility in South-Western Nigeria. Population and Employment Working Paper No. 54 ILO, May 1977.

2/ U.N., Selected factors affecting fertility and fertility differences in developing countries, New York 1981, pp. 56-61.

Table 4: Mean number of children wanted by age group of women

Age Group	L U S A K A				Keembe
	Low density	High density	Squatter	Total	
12-14	5.05	4.89	5.19	5.06	4.58
15-19	5.53	5.87	6.26	5.74	5.25
20-24	5.50	5.66	6.82	6.36	6.98
25-29	6.14	6.50	7.10	6.82	7.51
30-34	6.55	6.97	7.40	7.14	7.43
35-39	7.35	7.26	7.70	7.54	9.08
40-44	7.26	7.33	7.92	7.65	9.00
45-49	6.75	8.10	7.20	7.45	7.93
Total	5.98	6.15	6.92	6.56	7.18

The number of children a woman has had is to some extent affected by tradition and social values prevalent in the society. Women were asked to state the number of children they would recommend to other women. They were also asked to indicate the number of children that would be recommended by their close friends, parents and husband's parents and relatives. Table 5 presents the results for the respondent's, close friends, parents and relatives and husband's parents and relatives. These data show that the mean number of children recommended by respondents was 6.3 and 8.2 for Lusaka and Keembe respectively. For respondents, there was no preference for sex. In both Lusaka and Keembe, parents, relatives, husband's parents and relatives recommended the same number of children. In Lusaka, respondent's parents, relatives and husband's parents and relatives showed more preference for boys than girls, while in Keembe such preference was shown only by husband's parents and relatives. It is also noted that in Keembe close friends, parents and relatives recommended greater numbers of children than was the case in Lusaka.

The existence of a strong preference for children of one sex can, all things being equal, influence fertility behaviour and related attitudes. In societies such as those of Bangladesh, India, Pakistan and Muslim Middle Eastern countries, sons are more valued for status and security reasons than are daughters. This preference results in preferential care for boys which has a negative effect on care for girls. To find out whether sex preference for children exists in Zambia, women were asked two questions: 1) "if you were to choose a small family of four children, which of these combinations of the sexes of children (four boys only, four girls only, two boys and two girls, three boys and one girl, and one boy and three girls) will you prefer? and, if you were to choose a large family with eight children, which of these will you prefer?

Table 5: Mean number of children recommended by respondents, close friends, parents and relatives, husband's parents and relatives, and by sex

Relation to respondents	Mean & No. of women (N)	L u s a k a			K e e m b e		
		Male	Female	Both Sexes	Male	Female	Both Sexes
Respondents	Mean	3.19	3.18	6.32	4.36	4.36	8.16
	Number	580	377	582	126	121	123
Close Friends	Mean	3.04	2.92	5.91	4.43	4.86	9.13
	Number	225	226	228	30	29	30
Parents and Relatives	Mean	3.58	3.21	6.53	4.06	4.46	8.25
	Number	120	122	124	15	15	16
Husband's Parents and Relatives	Mean	3.41	3.30	6.53	4.38	3.95	8.1
	Number	73	72	75	21	21	22

Table 6 shows distribution of women by choice of sex combinations of children. No strong preferences for children of one sex was indicated since 80.7 and 79.7 percent of Lusaka and Keembe women respectively thought that a combination of two boys and two girls was ideal. The proportion of women who preferred either boys only or girls only was the same in each urban strata whereas in Keembe 3 percent of the women preferred four girls and only 1 percent preferred boys only. However, the proportion of women who preferred three boys and one girl (9.0 percent in Lusaka and 8.4 in rural Keembe) was slightly higher than the proportion of women who preferred three girls and one boy (6 percent for Lusaka and 6.5 percent for Keembe). It is interesting to note that the reason for preference of two boys and two girls is that women wanted an equal number of each sex. The preference for three girls and one boy was qualified by the view that girls were more useful in house work and in child care. On the other hand, the women who preferred three boys and one girl thought that boys were more useful on the farm and indicate that girls leave home when they marry but boys bring their wives home to help their mothers. A number of women who wanted fewer boys thought they grew up as theives and girls remained responsible and took greater care of parents.

Table 7 presents the distribution of women by combinations of sexes preferred in a large family of eight children. As already noted above, Zambian women want a balanced combination of each sex; 59 and 70 percent in Lusaka and Keembe respectively wanted a combination of four boys and four girls. The preference for more boys than girls was stronger in Lusaka than in Keembe. It is also noted that the preference for either boys only or girls only was relatively low. In Lusaka, women in low and high density areas seem to prefer more boys than girls in contrast to the situation in squatter areas. This evidence suggests that urban Zambians are more concerned with having male children than rural Zambians.

Table 6: Percentage distribution of women by sex combination of children preferred (a small family of four children)

Sex combination	Lusaka				Keembe
	Low density	High density	Squatter	Total	
Two boys, and two girls	89.3	79.1	79.5	80.7	79.7
Three boys, and one girl	5.3	10.8	9.0	9.0	8.4
Three girls, and one boy	4.3	5.7	7.0	6.2	6.5
Four boys	0.3	0.9	1.7	1.3	1.1
Four girls	0.3	0.9	2.1	1.5	3.2
Don't know/no choice	0.5	2.6	0.7	1.3	1.1
Not stated	18	53	38	109	38
Total	412	896	1584	2892	581

Table 7: Percentage distribution of women by sex combination of children preferred, (a large family of eight children)

Sex combination	Lusaka				Keembe
	low density	high density	Squatter	Urban Total	
Four boys, and four girls	52.3	58.5	65.4	58.8	78.2
Five boys, and three girls	22.2	18.3	14.4	16.1	9.1
Six boys and two girls	4.9	4.6	4.7	4.5	2.6
Five girls and three boys	13.7	11.5	8.5	9.7	9.3
Six girls, and two boys	5.9	2.7	2.7	3.0	6.1
Eight boys only	-	0.4	0.3	0.4	-
Eight girls only	0.5	-	0.6	0.2	0.9
Other combination	-	1.1	2.7	3.6	0.9
No choice/don't know	0.5	2.9	0.7	3.7	0.9
Not stated	23	56	46	125	40
Total	410	896	1584	2890	501

Comparison of sex preferences in a small family of four children with that of a large family of eight children seems to suggest a negative relationship between proportion of females and number of children in a family. The reasons, already mentioned above, for combinations of sex preferred in a small family are the same as those of a large family.

It is also interesting to note that when women were asked whether "husband's people lay any traditional emphasis on the need to have male children", the responses did not indicate any strong preference for male children as shown in Table 8. An overwhelming majority of women (81.9 and 78.2 in Keembe and Lusaka respectively) thought that "husband's people" did not place any special emphasis on having male children. While 21.3 percent of women in Lusaka answered in the affirmative, the corresponding percentage for Keembe was 17.4. The pattern of responses by age is not very clear. It would seem that more older women (35 - 44 years) than younger women (15 - 34 years) in Lusaka thought that husband's people did not have any preference for male children; the reverse is the case for Keembe.

As already noted, high premium is placed on children in Zambia. In the survey, women were asked, "would you consider a couple with 12 children more important than a couple with 4 children?" The results which are presented in Table 9 show that 37.7 and 33.2 percent of urban and rural women respectively felt that a couple with 12 children was more important than a couple with 4 children. A majority of women in Lusaka (59.7 percent) and Keembe (64.6 percent) thought that a couple with 12 children was not more important than a couple with 4 children. It is rather surprising that more Keembe than Lusaka women responded negatively. In Lusaka, 64.7 percent of high density women responded negatively. The percentages were 57.8 and 56.9 for squatter and low density areas respectively and more women in the squatter area (41 percent) than any other area answered in the affirmative. These data suggest that value of children is related to age of women, although the rural areas display an erratic pattern which may be partly due to misreporting of age.

Child-Spacing Practices

In order to investigate child spacing practices in Zambia, women were asked to indicate what they "consider the best interval between two births". They were also asked to indicate what interval their close friends, parents and relatives and husband's parents and relatives would recommend. The results are presented in Table 10. The mean interval between two births was higher in Lusaka than Keembe. It is interesting to note that the largest difference in suggested mean interval between Lusaka and rural Keembe was given by parents and relatives. As expected, husband's parents and relatives recommended shorter birth interval between births. This underscores parental attitude towards large family size. The "best" mean interval between two births was higher for respondents in Lusaka than those in Keembe, 24.6 as against 20 months.

Table 8. Percent distribution of women as to whether "husband's people lay any traditional emphasis on the need to have male children"

Age group	L u s a k a					K e e m b e				
	Yes	No	Don't know	Not stated	Total	Yes	No	Don't know	Not Stated	Total
12-14	6.5	87.0	6.5	30	61	-	100.0	-	23	24
15-19	24.3	74.1	1.6	45	230	19.2	80.8	-	21	47
20-24	20.5	78.8	0.7	25	460	18.8	81.2	-	2	50
25-29	22.2	77.6	0.2	10	455	17.2	82.8	-	9	38
30-34	24.3	75.7	-	5	392	18.5	79.6	1.9	4	58
35-39	17.3	82.3	0.4	3	281	23.4	76.6	-	4	51
40-44	18.8	80.7	0.5	7	204	18.2	79.5	2.3	3	47
45-49	24.0	76.0	-	3	99	8.9	91.1	-	11	67
Total	21.3	78.2	0.5	128	2182	17.4	81.9	0.7	77	382

Table 9: Per cent distribution of women who would consider a couple with 12 children more important than a couple with 4 children

Age group	L U S A K A																				Keenba				
	Low density					High density					Squatter					Total									
	Yes	No	DK	NS	Total	Yes	No	DK	NS	Total	Yes	No	DK	NS	Total	Yes	No	DK	NS	Total	Yes	No	DK	NS	Total
12 - 14	44.4	46.1	9.5	7	70	19.8	57.1	23.1	23	144	35.0	54.8	10.2	14	151	31.1	53.9	15.0	44	365	29.1	56.4	14.5	11	86
15 - 19	24.1	71.1	4.8	7	90	25.0	67.9	7.1	15	183	34.8	63.4	1.8	6	230	29.5	66.3	4.2	28	503	24.1	72.5	3.4	12	70
20 - 24	40.0	60.0	-	-	55	28.3	71.0	0.7	11	149	40.7	59.3	-	6	328	37.3	62.5	0.2	17	532	36.2	63.8	-	2	60
25 - 29	32.3	67.7	-	2	67	19.2	79.1	1.7	2	122	45.1	54.9	-	4	290	36.7	62.9	0.4	8	479	47.1	52.9	-	7	41
30 - 34	50.7	46.6	2.7	2	75	41.2	58.8	-	1	103	39.5	60.5	-	6	226	42.0	57.5	0.5	9	404	33.9	66.1	-	3	65
35 - 39	64.3	35.7	-	-	28	48.2	51.8	-	1	86	47.7	52.3	-	-	174	49.5	50.5	-	1	288	35.8	64.2	-	2	55
40 - 44	52.6	47.4	-	2	21	40.0	60.0	-	2	77	44.0	52.6	-	4	116	44.2	55.8	-	8	214	35.8	64.2	-	3	56
45 - 49	25.0	75.0	-	-	8	40.0	60.0	-	-	35	38.8	58.2	-	2	67	37.7	62.3	-	2	110	30.1	69.7	-	3	79
Total	40.1	56.9	3.0	20	414	30.2	64.7	5.1	55	899	41.0	57.8	1.2	42	1582	37.7	59.7	2.6	117	2895	33.2	64.6	2.2	43	492

N = number of women in each age group

NS = not stated

DK = Don't know

Table 10: Distribution of women by recommended interval between two births

Interval in months	Respondents		Close friends		Parents and relatives		Husband's parents and relatives	
	Lusaka	Keembe	Lusaka	Keembe	Lusaka	Keembe	Lusaka	Keembe
12 months	0.6	1.1	0.9	1.1	0.1	1.4	0.0	3.1
12-24	77.1	91.5	39.0	56.5	36.4	53.9	32.1	51.1
25-36	16.2	5.3	5.9	1.1	8.0	0.7	4.1	0.7
37 and over	4.5	1.3	2.2	0.4	1.5	0.4	0.7	-
Do not know	1.6	0.8	52.0	40.9	53.5	43.6	63.1	45.1
Not stated	291	76	15	10	14	11	14	11
Total	1615	451	1619	450	1617	449	1588	434
Mean in months	24.6	20.0	23.3	18.5	23.8	18.4	19.0	17.9

Table 11: Distribution of women by interval between the last two births

Interval in months	Lusaka		Keembe		Total	
	Number	Percent	Number	Percent	Number	Percent
12 months	41	3.5	3	0.9	44	3.0
12-24	510	43.5	141	46.0	651	44.0
25-36	364	31.0	74	24.1	438	29.6
37-48	136	11.6	47	15.3	183	12.4
49 and over	122	10.4	42	13.7	164	11.1
Not stated	196	-	59	-	255	-
Total	1369	-	366	-	1735	-
Mean	30.56	-	34.29	-	31.34	-

The distribution of women by interval between the last two births presented in Table 11 shows that the reported mean interval between the last two births was considerably higher than that of any two births recommended by respondents, close friends and parents and relatives. The mean interval between the last two births was 12 percent higher in Keembe than Lusaka and this is contrary to our finding in respect of preferred mean interval between last two births. A birth interval of less than 12 months between the last two births is virtually non-existent in the rural setting; 0.9 as compared with 3.5 percent in Lusaka. This interval which is rather short was probably affected by errors of timing. It nevertheless indicates a shorter birth interval among urban than rural women. It is also worth noting that some women reported never menstruating between two births.

In order to assess current perceptions of contemporary costs of bringing up children, women were asked whether they thought a father of twelve children could raise and educate his children as satisfactorily as a father of four children. Responses to this question are summarized in Table.

Table 12: Distribution of women by whether they thought a father of 12 children could raise and educate his children as satisfactorily as a father of four children

Response	L u s a k a								Keembe	
	Low density		High density		Squatter		Total		No.	%
	No.	%	No.	%	No.	%	No.	%		
Yes	98	23.7	214	23.8	279	17.6	591	20.4	69	14.0
No	298	70.8	604	67.2	1245	78.6	2142	73.9	368	74.8
Not stated	23	5.5	81	9.0	60	3.8	164	5.7	55	11.2
Total	414	100.0	899	100.0	1584	100.0	2897	100.0	492	100.0

These data suggest that most women associate a large number of children with higher costs of raising and educating these children although they were reminded during the interview of the availability of free education in Zambia. It was therefore significant that in all the survey areas more than seventy percent of the women did not think twelve children could be raised and educated as satisfactorily as four children.

Only one fifth of Lusaka and 14 percent of Keembe women thought it was possible to educate either number satisfactorily. They however qualified their responses with the statements summarized in Table 13. About half the women thought much depended on the income of the family. Over a fifth of Keembe women though much depended on whether parents worked hard. In low and high density areas of Lusaka, a significant number thought a father may educate the eldest and rely on the latter to educate the younger ones. This response appears to reflect actual experience of persons in low and high density areas. It is worth noting that a very insignificant proportion of Lusaka women and no Keembe women identified free education as a facilitating factor.

Table 13: Percentage distribution of women by reason why they thought a father of 12 children could raise and educate his children as satisfactorily as a father of four

Reasons	L U S A K A				Keembe
	Low density	High density	Squatter	Total	
depends on income of family	59.2	57.9	49.8	54.3	46.4
if parents work hard	5.1	10.7	17.2	12.9	21.7
parents spend money only on uniforms	4.1	0.5	7.9	4.6	-
father may educate eldest child and expect the latter to educate younger ones	17.3	12.1	4.3	9.3	10.1
children may support themselves	-	0.5	-	0.1	2.9
other reasons	14.3	18.2	20.8	18.8	18.8
Number of women	98	214	279	291	69

Women who thought a father of twelve children could not raise and educate his children as satisfactorily as a father of four advanced the reasons presented in Table 14. The high cost of feeding was the most important reason and was mentioned by 73.9 percent and 84.8 percent Lusaka and Keembe women respectively. This reason was emphasized most in low density areas. The cost of uniforms came up as an important reason among 13.9 and 17.7 percent high density and squatter women respectively but was not a significant cause in either the low density areas or in Keembe. It is rather interesting that problems of overcrowding and discipline in the family ranked so low in the order of responses. It may well be that the problem of providing adequate nutrition for children was the one reason that preoccupied women's minds to the extent of overshadowing other equally pertinent reasons.

Table 14: Percentage distribution of women by reason why they thought a father of 12 children could not raise and educate his children as satisfactorily as a father of four children

Reason	Lusaka			Keembe	
	Low Density	High Density	Squatter Areas	Total	
high cost of feeding	85.7	72.5	71.9	73.9	84.8
can't raise enough money to educate all equally	5.8	6.5	1.9	3.7	0.5
student uniforms expensive	4.1	13.9	17.7	14.8	6.5
children can't live comfortable and can't work well at school	-	-	1.1	0.7	0.8
parents can't have full control of children	-	1.8	0.5	0.8	0.8
other reasons	3.4	4.8	6.9	5.8	6.5
not stated	1.0	1.5	-	0.3	-
Number of women	293	604	1245	2142	368

Conclusion

This paper suggests that women in urban and rural communities in Zambia want to have many children. Their perception of a large family relates to a couple with about ten children. A small family to these women refers to a couple with about four children. The data suggest that couples want many children as an insurance for company and support in old age. Many also expect prestige, luck and influence if they have many children. Others worry that some children would not survive to adulthood.

The mean number of children women wanted increased with advancing age and reflected a rationalization of achieved fertility rather than a clear trend towards an option for smaller family size among younger women. The number of children recommended by close friends, parents and relatives and by husband's parents and relatives was equally high for urban and rural population.

Although the large number of children recommended by these people did not reflect any clear preference for one sex, Lusaka residents tended to prefer more boys than girls in contrast to Keembe where such preference was shown only by parents and husband's parents and relatives. However, in both Lusaka and Keembe there was a strong preference for an equal number of boys and girls. There was no evidence of preferential care or attention to boys as has been observed in Asian and Muslim countries. Contrasting patterns

Contrasting patterns of sex preferences have, however been found for men and women in Thailand. These suggest that if studies of sex preferences are based exclusively on samples of women, as this one, results may be misleading. In the Thai study male respondents in both urban and rural samples expressed a preference for sons. 1/

Problems of raising children which preoccupy women's attention include feeding, clothing and cost of education. Increased cost of feeding children ranked highest in problems enumerated by women. This was probably a reflection of women's preoccupation with current food costs and shortages rather than the non-existence of other important problems of child care. The widespread perception of problems associated with large families is a first step towards encouraging women to plan the timing, frequency and number of births she and her husband want in an effort to fulfil aspirations they have for their children's future.

1/ John Knodel and Visid Prachuabmoh, "Preferences for sex of children in Thailand: A comparison of husband's and wives' attitude" in studies in Family Planning, Vol. 7, No. 5, May, 1976.

AVAILABILITY AND USE OF MEDICAL FACILITIES IN ZAMBIA

Introduction

The relationships between population and health is increasingly becoming recognized. Demographers and other researchers in population have become more concerned with the quality, distribution, and characteristics of those living, and with the relationship between population and the quality of life. The definition of health in the narrowest sense as the absence of disease has given way to a broader concept of positive state of physical, mental, and social well-being, and these are key elements in quality of life. According to the definition by the World Health Organization, "Health is a state of complete physical, mental and social well being and not merely the absence of disease or infirmity." The central position of population variables in the assessment of the health status of any society was recognized by pioneers of the science of epidemiology such as Hippocrates and John Grounts and the close link health status and the quality of the population have been widely recognized. Population and health are closely related. Mortality which is one of principal variables of demographic analysis, is in a way a measure of health status.

The main slogan of "health for all by the year 2000" forms the basis of national health policy in Zambia. It is planned that during this period health care will be free to all people and health institutions and facilities will be within easy reach of every Zambian. Before independence most health facilities were provided for by missionaries in outlying areas and mine companies in the Copperbelt province as well as Government health facilities in towns and urban areas along the old line-of-rail. Operating side-by-side the modern medical system are the facilities provided by traditional healers, "the Ng'angas", most of whom belong to a recognized association, the ATHOZA, (African Traditional Healers of Zambia).

Zambia's hospitals, rural health centres, urban clinics, leprosaria and flying doctor services comprise the medical facilities which are available in the country. Since independence in 1964, the Government has expanded medical facilities and improved their geographic distribution. The number of hospitals has almost doubled the pre-independence figure and number of medical personnel has multiplied. The number of hospital beds has increased resulting in positive changes in such indicators as the bed ~~population~~ ratio. The expansion of preventive health services has since ~~eradicated~~ or reduced the incidence of diseases such as tuberculosis, smallpox, yellow fever, cholera, measles, diphtheria, whooping cough, tetanus and poliomyelitis. Maternal and child health programmes have also been established. National Food and Nutrition Commission and the Health Education Programme have contributed to reductions in morbidity and mortality.

Table 1 below presents a summary of the growth of medical services and facilities. The medical team density ratio of 80.5 per 100,000 is higher than in most African countries except countries like Kenya, Zimbabwe and Islands of Mauritius and Reunion 1/.

Table 1. Growth of medical services and facilities in Zambia

Year	Hospitals, clinics and health centres	Beds and coats	Medical team density per 100,000
1964	354	10,850	-
1968	481	13,940	-
1973	691	18,940	-
1977	747	19,800	80.5

Source: 1. Ministry of Health Annual Reports
2. Sixth report on the health situation

Medical team density ratio for Africa 101.2

East Africa 89.0 world 349.6 per 100,000

Zambia has a pleasant subtropical climate because of its relatively high altitude. Common diseases throughout the country are malaria, bilharzia, hookworms, tuberculosis, cerebro-spinal meningitis, poliomyelitis, measles, trypanosomiasis, and gastro-intestine diseases. The efforts due to mass preventive programmes resulted in ~~eradication~~ of diseases like smallpox as well as bringing under control many other preventable infectious diseases 2/.

The interrelationship between population and health facilities, their availability and utilization is of utmost importance to policy makers, health planners, as well as demographers. This paper reports on the availability and use of health services in Zambia.

1/ WHO: Sixth Report on the World Health Situation Part one, Geneva 1980

2/ D.H. Davies, Zambia in Maps, p, 102, London 1971, Republic of Zambia, Government of Zambia, Ministry of Health Annual Reports, Lusaka 1980.

Source of data

The data for this paper were collected during the fourth round of this survey. The questionnaire elicited information from women in the childbearing age group, 12-50 years. It was found relevant that since women in households in Zambia look after the affairs of the family they would be able to give information about health situation of all members in the households. In general, women and mothers in particular take sick children to hospitals, clinics or even to traditional healers for treatment. Sometimes they have to pay for transport for each journey to and from hospitals. Although medical services from public hospitals, health centres and clinics are free of charge in the country, private practitioners charge a fee for the services they render. The women are also expected to take their children to under-five clinics (or children's clinics) where there are maternal and child health (MCH) services. This role is performed by women although, sometimes men may also perform these tasks.

Health services and their use

Health services in Zambia are centred on large hospitals providing curative medicine. Most of these are located in towns and cities along the old line-of-rail. The urban clinics which are also found in the urban centres are usually referral and filter centres for the large hospitals. The rural centres are larger clinics most of them are equipped with in-patients' facilities like beds. In areas where transportation is difficult because of the terrain, the people are provided with the flying doctor service, which operates from Ndola to remote rural areas mainly in Luapula and North-western provinces.

Side-by-side the modern health system there exists the traditional healers. These are found throughout the country and their services are patterned onto particular tradition and cultural norms of different tribes.

In this survey, information was collected from women aged 12-50 years on the availability and use of medical services. Data presented in Table 2 provides responses to the question "when you or members of your family are sick where do you go for treatment?"

Table 2. Distribution of respondents by type of medical facilities used for treatment.

Survey area	Hospital		Health centre (or clinic)		Traditional healer		Hospital and clinic		Hospital clinic and traditional healer		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Rural Keembe	10	2.7	220	60.4	2	0.5	92	25.3	37	10.2	364	100
Low density	12	3.3	224	62.4	1	0.3	107	30.1	11	3.1	359	100
High density	29	18.6	101	64.7	-	-	26	15.4	-	-	156	100
Squatter	11	1.7	407	61.3	1	0.2	210	31.9	25	3.8	659	100

Table 3: Distribution of respondents in survey areas by distance of location of medical services from residence.

Survey area	Distance from home in miles (1m = 1.7 km)													
	Under 1 mile		1		2		3		4		5		6	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Rural Keembe	22	6.0	7	1.9	10	2.7	27	7.4	34	9.3	45	12.4	219	60.1
Low density	34	9.5	244	63.0	43	12.0	17	4.7	3	0.8	1	0.3	3	2.3
High density	4	2.6	30	19.2	32	20.5	31	19.9	15	9.6	25	16.0	11	7.2
Squatter	7	1.1	327	49.6	65	9.9	68	10.3	27	4.1	55	8.3	97	14.9

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Medical systems in the country are decentralized. In Lusaka as well as in other towns patients try as much as possible to get treatment from a clinic nearest to their residential areas before going to the hospital. This as an administrative arrangement enables fuller use of available medical services and probably reduces work load at a hospital. Data in Table 2 substantiates this point, that is more respondents in all survey areas recorded that they had treatment from the health centres or clinics than from hospitals.

Although traditional healers operate side-by-side the modern medical system in the country, the data in Table 2 show that relatively very few people seek traditional medicine only whenever they are ill. However, the data do show that there is a significant proportion of people who use both modern medical services provided by hospitals and clinics as well as traditional healers.

The utilization of type of services depends on availability of facilities, the satisfaction that people derive from the facilities and nearness of places where such facilities are available. People do not usually utilize services that are very far because of difficulties of transport, and as such people generally do not consider such services as meant for them. It is on this basis that the goal of the Government is "..... and health institutions will be within easy reach of every Zambian", remains the cornerstone of national health policy 3/. Table 3 presents information on the distance from homes to a nearest location of medical services.

Data in Table 3 show that medical centres are within a distance of two miles for most people in Lusaka. About 60 per cent of respondents in Keembe recorded that medical centres are very ~~far~~. This situation is apparently similar in the case of people living in squatter areas, although there were about 15 per cent of respondents whose homes were relatively far from the nearest medical centre hence the Governments and WHO aims at providing medical services within "walking distance" to everybody 4/.

Other information from the survey recorded that most people walked on foot to the medical centres. This mode of travel is of course necessitated by other factors but the location of medical services is paramount. Table 4 presents data on mode of travel by respondents.

3/ WHO, Sixth report on the world health situation part two review by county and area, p. 49, Geneva 1980.

4/ WHO, Demographic, socio-economic and health situation in the African Region: Reference data I. Brazzaville 1974.

Table 4: Distribution of respondents by form of travel from homes to medical centres

Survey area	on foot		Mode of Travel							
	No.	%	Personal Car No.	%	Bus No.	%	Taxi No.	%	Other No.	%
Rural Keembe	169	46.4	4	1.1	142	39.0	3	0.8	17	4.6
Low density	296	82.5	18	5.0	17	4.7	7	1.9	15	4.2
High density	22	14.1	96	61.5	20	12.8	9	5.8	9	5.7
Squatter	472	71.6	6	0.9	92	14.0	11	1.7	75	11.4

Table 4 shows that in all survey areas many people walk on foot to medical centres for treatment. An exception is in the case of high density area where it was recorded that 61.5 per cent of people used their personal car for transportation. This result may be due to sampling errors, associated with sample surveys. The evidence for the low density is certainly due to proximity to the health centre and to sampling errors.

The rather high-proportion of people who use bus transport as recorded in Keembe reflects that medical services in rural areas are not within walking distance as yet. In fact data in Table 3 supports this observation.

Attitudes of people towards services

In the previous part of the paper we saw how medical systems have expanded since independence in 1964. There are comparatively many more people who depend on modern medical systems for treatment than was the case a decade ago. The clinics and health centres are the major units for curative medicine in Zambia. In this part of the paper we analyse the extent to which people get satisfaction from the available health facilities and services. Women were asked whether they were satisfied with the type of services and help they received at the hospital/health centre/clinic or from healers.

Table 5 shows the distribution of women by whether they were satisfied with medical care they received. Most of them thought they were satisfied although some women in high density areas expressed dissatisfaction with services received.

Table 5: Distribution of respondent as to whether they were satisfied with medical services

Satisfied	Rural Keembe		Low Density		High Density		Squatter		Total %	
	No.	%	No.	%	No.	%	No.	%	Total	%
Yes	338	92.9	313	87.2	130	83.3	591	89.7	1034	88.1
No	2	0.5	31	8.6	18	11.5	45	6.8	94	8.0
Not stated	24	6.6	15	4.2	8	5.2	23	3.5	46	3.9

Analysis of the reasons for dissatisfaction with medical services which are presented in Table 6 show proportions of respondents who were dissatisfied because "nurses are rough/rude", "they don't treat well" or that sometimes there are no medicine. Only two women from Keembe were dissatisfied.

The data presented in Table 7 show that women who consulted traditional healers were on the whole less satisfied of the care received than women who were treated in hospitals, health centres or clinics. It is, however, interesting that a large number of women said they had not consulted a traditional healer. It would appear that women in all survey areas had consulted traditional healers.

The reasons given by women who were dissatisfied with services of traditional healers are summarized in Table 8. Most of them thought healers did not treat well or never treat in time.

Preventive health services

Besides curative services provided throughout the country, there are preventive medical services which focus on such diseases as tuberculosis, leprosy, cholera and malaria. There are also maternal and child health services which focus on pregnant and nursing mothers and children. These services have been extended to include children under 15 years of age. These programmes aim at educating women about managing their pregnancies and child care especially of infants and children below ages of 5 years who constitute the most vulnerable group in morbidity and mortality.

Table 6. Percentage distribution of women by reasons for dissatisfaction with medical services, Lusaka

Reasons	Low Density	High density	Squatter	Total
They don't treat in time	12.9	5.6	6.7	8.5
I have never consulted any healer	3.2	-	2.2	2.1
You don't get cured fast	-	-	11.1	5.3
Sometimes there are no medicines	19.4	-	26.7	19.7
One has to wait for a long time for one's turn	3.2	16.7	17.8	12.8
Nurses are rough	25.8	27.8	15.6	21.3
They don't treat well	32.3	44.4	15.6	26.6
Others	16.1	27.8	20.0	20.2
Number of women	31	18	48	94

Table 7. Distribution of women by satisfaction with treatment for traditional healers

	L U S A K A									
	Rural Keembe No.	%	Low density No.	%	High density No.	%	Squatter No.	%	Total No.	%
Satisfied	70	19.2	55	15.3	11	7.1	108	16.4	174	20.7
Not satisfied	14	3.8	9	2.5	4	2.6	22	3.3	35	4.0
Not applicable	-	-	-	-	141	90.3	529	80.3	670	76.0

Table 8. Distribution of women by reason for dissatisfaction with traditional healers

Reasons	Rural Keembe				L U S A K A				T o t a l	
	No.	%	Low density No.	%	High density No.	%	Squatter No.	%	No.	%
They don't treat in time	7	50.0	1	11.1	2	50	7	31.8	10	28.6
I have never consulted any healer	-	-	1	11.1	2	50	2	9.1	5	14.3
You don't get cured fast	2	14.3	-	-	-	-	2	9.1	2	5.7
Sometimes there are no medicines	-	-	3	33.3	-	-	-	-	3	8.6
One has to wait for a long time for one's turn	-	-	-	-	-	-	1	4.6	1	2.9
It is difficult to find a good healer	1	7.2	-	-	-	-	-	-	-	-
They don't treat well	5	3.6	4	44.4	2	50	6	27.3	12	34.3
Others	7	50.0	3	33.3	1	25	22	100	26	74.3
Number of women	14	-	9	-	4	-	22	-	35	-

Preventive health services

Besides curative services provided throughout the country, there are preventive medical services which focus on such diseases as tuberculosis, leprosy, cholera and malaria. There are also maternal and child health services which focus on pregnant and nursing mothers and children. These services have been extended to include children under 15 years of age. These programmes aim at educating women about managing their pregnancies and child care especially of infants and children below ages of 5 years who constitute the most vulnerable group in morbidity and mortality.

In this survey information on living conditions was elicited. The level of morbidity of communicable diseases were high where living conditions were poor. The relationship between number of rooms occupied, water supply, toilet facilities and sewage disposal services on one hand and mortality has been analysed in another paper.

Table 9 presents information on whether women had vaccinated their children against some of the communicable diseases.

Table 9. Percentage distribution of women whose children had been vaccinated by type of vaccine given

Vaccine given for	RURAL KEEMBE		L U S A K A	
		Low density	High density	Squatter %
Tuberculosis	73.9	85.0	83.3	87.9
Measles	71.4	84.4	84.0	86.3
Smallpox	70.9	84.4	84.0	86.5
Whooping cough, diphtheria and tetanus(triple injection)	66.5	84.7	84.0	86.0
Yellow fever	23.6	38.7	24.4	26.0
Cholera	16.8	44.8	27.6	34.9
Polyomyelities	65.7	83.8	83.3	85.7
Total No. of women	364	359	156	659

The data in Table 9 show that most children had been vaccinated against the most dreaded communicable disease although the percentages were lower for Keembe women for especially for polyomyelitis and the triple vaccine. This might have been due in part to the lack of vaccines during certain periods. This lower incidence of vaccination of Keembe children against measles, whooping cough etc. probably explain the high infant and childhood mortality already noted for this area.

Data from Lusaka show that more than 50 percent of women had their children vaccinated against most common infectious diseases such as TT, measles, and smallpox, and there were no significant differences among different strata for major children's disease. There was still need to increase vaccination to cover all children.

Information in Table 10 throws some light on diseases which should be the target of preventive services in Keembe and Lusaka.

Table 10: Percentage distribution of women whose children were not vaccinated against specific disease

Type of disease	RURAL KEEMBE	L U S A K A		
		Low density	High density	Squatter %
Tuberculosis	7.4	2.5	2.6	5.6
Measles	9.3	3.3	2.6	7.0
Small pox	29.1	3.3	1.9	6.7
Whooping cough diphtheria and tetanus (triple injection	33.5	3.1	1.3	7.4
Yellow fever	76.4	49.1	53.2	65.3
Cholera	83.2	43.2	48.7	56.9
Polyomyelities	34.3	3.6	3.2	7.4
Total women	364	359	156	659

These data show that about one third of women in Keembe did not vaccinate their children against whooping cough, diphtheria and tetanus injection and polyomyelitis. These therefore constitute target areas in the preventive programmes in the rural areas.

Parental role in child health care

Kinship systems vary from tribe to tribe although the extended family system is common to all tribes in Zambia. The value of children is emphasized by cultural practices related to child birth and care. Information on the role of parents in child health care summarized in Table 11 show that women in squatter areas of Lusaka were generally left ~~alone~~ to care for their sick children. Thus 63 percent of them took sick children for treatment alone. As ~~many~~ as 44.8 percent of the low density women undertake this task alone. There was more couple involvement in care of the sick child in Keembe than all urban areas. This suggest that urban men did not normally help their wives take children for treatment. Relatives, however, played a significant role in this task although it was usually a female relative that assisted wives to take children for medical treatment.

Table 11. Percentage distribution of persons who took sick children to hospital/clinic for treatment

Persons	Rural Keembe	L U S A K A		
		Low density	High density	Squatter
Respondent hereself	22.3	44.8	36.5	63.3
Respondent and husband	54.1	35.9	48.1	27.0
Respondent and relative	5.2	5.0	0.6	0.6
Husband and relative	0.3	0.6	0.6	0.2
Respondent's husband	0.5	0.8	-	0.8
Relative	0.3	0.3	-	0.8
Not stated	17.0	11.4	14.1	8.0

Analysis of husbands functions when a child is sick shows that more rural than urban husbands help wives with housework and child care when a child is sick.

Table 12. Percentage distribution of functions a husband performs when a child is sick

Functions	Rural Keembe	Low density	High density	squatter
Caring for sick child	57.7	66.3	69.2	71.8
Sleeping in hospital with child	32.7	10.9	5.1	8.8
Cooking for other children	25.8	10.3	1.3	7.7
Looking after other children	25.0	10.2	1.3	7.9
Buying medicines for child	24.7	9.7	1.3	7.9
Buying food for household	24.7	9.4	1.3	7.6
Other	0.3	0.3	3.8	0.3
Not stated	27.5	21.2	20.8	10.8

These data presented in Table 12 show that only 10.9 percent of low density husbands slept in hospital with sick children compared with 25 percent of Keembe husbands. Although most husbands cared for sick children the nature of this care was not specified to child care and housework listed on this table. This is not the case in Lusaka. The relatively fewer husbands recorded other functions other than "caring for sick child" perhaps explains the differential roles of husbands and wives in urban areas.

Table 13 presents data on women's confidence in their husbands in caring for a sick child.

Table 13. Percentage distribution of women by whether they had confidence in their husbands looking after a sick child during their absence

	RURAL KEEMBE	L U S A K A		
	Rural Keembe	Low density	High density	Squatter
Yes	51.9	57.9	73.7	72.2
No	17.6	18.7	7.1	14.9
Not stated	28.3	21.7	18.6	12.1

These data show that although many women had confidence in their husbands ability to look after sick children, only about half of the respondents in Keembe and in the low density had such confidence. Doubts about husband's ability to care for sick children were expressed by 17.6 percent Keembe women and the corresponding percentages for low density and squatter areas were 18.7 and 14.9 percent respectively.

Data in Table 14 present the reasons why women had confidence in their husband in caring for sick children.

Table 14. Percentage distribution of women by reason for having confidence in husbands caring for sick children

Reasons	L U S A K A			
	RURAL Keembe	Low density	high density	Squatter
He has done it before when I stayed in hospital	57.6	35.4	27.2	39.5
He helps me everytime	2.5	7.1	18.4	20.1
He is a responsible man	16.2	18.9	15.8	6.3
He is kindhearted and loves his children/he is a Christian	16.7	24.5	12.3	22.4
Others	7.1	14.2	26.3	11.6
Total	100	100	100	100
No. of women	198	212	114	473

It is noted from Table 14 that few urban women were confident that their husbands could take care of a sick child, because their husbands had done it before. Thus while 57.6 percent Keembe women said their husbands had done so before, only 35.4 percent of low density and 27.2 percent of high density women said their husbands had done so before.

Table 15 summarizes reasons why some women had no confidence in their husbands' ability to care for children. The information indicates that most men were usually away from their homes drinking beer. Some women also thought that mothers care better or more than fathers.

The care of a sick child is therefore a duty left in most cases to women alone although some husbands help. Analysis of data on persons who care for children when mothers are away are presented in Table 16.

Table 15. Percentage distribution of women by reasons for lack of confidence in husband's ability to care for sick child

Reasons	L U S A K A			
	RURAL KEMBE Rural Keembe	Low density	High density	squatter
He likes going out for beer drinking/never at home	9.3	15.9	-	15.6
He refuses to help look after children/says children are a problem	7.4	4.8	11.1	3.3
Always away from home at work /driver)	3.7	6.3	11.1	32.2
Mothers care better/ more than fathers	48.1	17.5	55.6	6.7
Other	31.5	55.6	22.2	42.2
Total	100	100	100	100
No. of women	54	63	9	90

Table 16. Distribution of persons who take care of children when the mother is sick or away from home.

Persons taking care of children	L U S A K A							
	Rural Keembe		Low density		High density		Squatter	
	No.	%	No.	%	No.	%	No.	%
Husband alone	48	13.2	74	20.6	15	9.6	224	34.0
Relative alone	25	6.9	33	9.2	4	2.6	45	6.8
Older children alone	3	1.4	42	11.7	2	1.3	24	3.6
Maids alone	-	-	7	1.9	3	1.9	1	0.2
Husband/relative	63	17.3	44	12.3	22	14.1	107	16.2
Older children	120	33.0	50	13.9	26	16.1	147	22.3
Husband/relative/ older children/maids	7	1.9	36	10.0	37	23.7	6	0.9
Relative/older children	8	2.2	11	3.1	3	1.9	5	0.8
Maids	1	0.3	4	1.1	2	1.3	1	0.2
Older children/maids	1	0.3	2	0.6	3	1.9	2	0.3
Other people	1	0.3	2	0.6	7	4.5	1	0.2
Total	356	100	358	100	147	100	627	100

These data show that the persons who look after children when mothers are away are usually husbands/relatives and older children. However a significant proportion of respondents reported that relatives alone took care of children. In fact data on migration brings out the point that migrants who were relatives constituted a significant percentage of members of households in Lusaka.

Table 17 presents information on types of child care functions husbands perform when wives are away.

Table 17. Percentage of types of child care functions husbands do in wives absence

	RURAL KEMBE	low density	L U S A K A high density	squatter
Cook for them	47.5	48.7	45.5	64.6
Clean them	36.3	31.5	25.6	44.3
Put them to bed at night	35.2	28.7	15.4	34.9
Play with them	23.9	24.5	10.3	16.4
Feed them	22.0	22.8	8.3	15.9
Do their laundry	20.9	15.9	5.1	13.2
Stay with them at home	19.5	15.3	4.5	12.7
Others	0.5	1.9	0.6	1.5

These data show that when mothers are away, the fathers perform functions like cooking food for children, feed the children or wash their clothes. For instance about five in every ten husbands, cook food for children when their wives are away. There are relatively fewer husbands who feed their children, only about one in every five do this. It is however evident that a significant number of husbands do not care for children even in the absence of their wives.

Summary and conclusion

In almost all developing countries the morbidity and mortality situation is dominated by children aged 0-5 years. In most of these countries available medical facilities cannot adequately meet the needs of the people. The medical doctor density ratio of 80.5 per 100,000 population as given in Table 1 for Zambia is far below the world ratio. This ratio conceals the uneven distribution of medical facilities and personnel within Zambia, as in other developing countries. .

It has been noted in this paper the rapid growth of modern medical services since independence although traditional healers still provide medical care in rural and urban areas in Zambia. Patients combine medical care from modern medical services with traditional healers. It would therefore be appropriate to develop and improve both systems of treatment particularly since the cost of modern medical services is too high.

The objective of providing medical services for the entire population inevitably requires establishing more health institutions especially where these do not exist. Needless to say that this would reduce the distance people have to walk to get treatment. Longer distances to hospitals or clinics discourage people taking their sick to hospital in time. Most of them only do so when the case is already critical.

Although these evidence here calls for increased services for maternal and child care, it is worth noting that services for these groups require more specialists and equipment than medical services for adults. There is also evidence of increasing dissatisfaction with the type of medical care given in hospitals and by tradition healers.

Although most women vaccinated their children, a significant proportion especially in rural Keembe did not. This might have been due to shortages of vaccines and lack of proper education for some of these women. There was evidence that husbands in urban areas did not always help wives with the care of sick children. This evidence suggests that developing of a programme of education of fathers and mothers on responsible parenthood would go a long way to ensuring greater involvement of both parents in child morbidity. Such a change will enable parents take prompt action to seek medical care for sick children at an early stage of the development of disease. Overall, such changes will usher in improve parental care which is necessary for the proper development of the child.

SOME ASPECTS OF MIGRATION IN THE DEVELOPMENT OF ZAMBIA

Introduction

Population movements in many African countries have been characterised by rural to urban migration. These movements have not only contributed to the rapid growth of towns and cities but they have also created problems for both places of origin and destination. For instance, the drift to urban areas in search of jobs by able-bodied youth has generated excessive pressure on already meagre resources and social amenities in the places of destination. On the other hand, places of origin have also been depleted of adequate manpower for productive functions required for socio-economic development. This situation has prompted many governments to initiate and implement integrated rural development programmes aimed at stemming the tide of flow.

In Zambia, movements of population were originally from rural areas to the mining towns on the Copperbelt. Data from the 1969 population census showed a high rate of internal migration in Zambia, which was basically labour migration to the copper mining towns and urban centres along the old line-of-rail. 1/ This rather high rate of internal migration has altered population redistribution in different provinces and districts and contributed to rapid population growth especially in the urban centres.

In 1969 and 1974 urban population constituted 29.4 and 35.3 per cent respectively of the total population. Data from the 1980 census of population and housing revealed that urban population has increased to 2,440,419 or 43 per cent of the total population implying an annual growth rate of 6.7 per cent as compared to the national growth rate of about 3 per cent per year. 2/ The population of some towns and cities has subsequently increased very rapidly over the same period. For instance, the population of Lusaka increased from 273,906 in 1969 to 411,000 and 579,000 in 1974 and 1980 respectively, the corresponding growth rates were 13.4, 9.4 and 7.0 per cent during the intercensal periods. 3/

1/ P.O. Ohadike and Habtemariam Tesfaghiorghis, Population of Zambia. CICRED, 1975

2/ CSO: Sample Census of Population 1974. Preliminary report Lusaka 1975.

3/ 1980 Census of Population and Housing. Preliminary report Lusaka 1981.

3/ CSC (12.1) Ibid.

Data from censuses in Zambia suggest that the rapid growth of urban population is due to rural-urban migration. It must be pointed out, however, that census data are inadequate to study other characteristics associated with internal migration. This paper attempts to examine retrospective and prospective data on in- and out-migration in selected areas in Zambia.

Data analysis

The data for this paper are derived from a four-round survey on interrelationships among infant and childhood mortality, socio-economic factors and fertility conducted jointly by the Central Statistical Office, Zambia and ECA's Population Division between August, 1976 and August, 1979 in selected areas in Zambia. The rural ~~sub-sample~~ was selected from Keembe in the Central Province while the urban ~~sub-sample~~ comprised stratified residential areas in the city of Lusaka. The rural ~~sub-sample~~ comprised scattered small villages in Keembe. There are a few commercial farms in the nearby Chisamba area but the people in Keembe, like other rural populations are engaged in peasant farming. The urban ~~sub-sample~~ consisted of strata selected in the low density areas which were predominantly inhabited by people of the higher income groups, the high density areas which included Matero, Kabwata and Chingwere and the squatter area such as Chawama, George and Mutendere.

The first round collected basic demographic data and also information on birthplace and number of years lived in urban and rural areas. The main limitation of this kind of data for detailed migration analysis is that information was elicited from female respondents aged 12-50 years.

The subsequent three rounds collected information on changes in household composition. They also elicited information on sex, age, relationship to household head and other socio-demographic characteristics of respondent. Information was also obtained on the destination or reason for leaving or joining the household. This paper will analyse the data collected during the four rounds of the survey.

An examination of prospective data on migration shows that rural Keembe and Lusaka are migration areas. Rural Keembe recorded 93 and 155 in-migrants and out-migrants respectively during the survey period. The corresponding figures for Lusaka were 550 and 870 respectively.

In order to appreciate better the magnitude of internal migration in the Keembe area two migration rates have been considered. The first is net migration change which is expressed as follows.

$$\text{Net migration change} = \frac{m_1 - m_0}{p} \times 1000$$

where

m_i is number of in-migrants

m_o is number of out-migrants and

p is observed population at end of survey period.

The data show a negative net migration change of - 18.2 per 1000 population. The second migration measure is the migration turn-over rate which is expressed as follows:

$$\text{Turn-over rate} = \frac{m_i + m_o}{p} \times 1000$$

where m_i , m_o and p are as above.

The turn-over rate in rural Keembe was 72.3 per 1000.

These two measures indicated that at least 18.2 persons per 1,000 population left Keembe area and that in general there were 72.3 persons per 1000 population involved in movements to and from Keembe. The net migration change in Lusaka was - 23.8. In other words, 23.8 persons per 1000 population moved to other areas. The turn-over rate in Lusaka shows that 109 persons per 1,000 population were involved in migration. This would imply that about 10 per cent or 60,000 persons in Lusaka were involved in migration during the survey period. It would appear that internal movements, although still high have relatively reduced the tempo over some time. It was shown in another study ^{4/} that there were about 96,632 persons or 13.6 per cent of the population in Central Province that were involved in internal migration between 1966 and 1969. It is seen that these two measures of internal migration show a high rate of migration in rural Keembe and the selected areas in Lusaka. In a study of internal migration in Zambia, (Ohadike et al.) also found that there was a high rate of migration in Zambia particularly in Central Province which at that time included Lusaka Province. The turn-over rate for the Central Province was 135.6 per 1,000 population.^{5/}

Characteristics of migrants

Internal migration in the Lusaka area was shown to be as rapid as in rural Keembe. Analysis of the characteristics of migrants in the rural and urban sub-samples are shown in Table 1.

^{4/} P.O. Ohadike. Demographic Perspectives in Zambia. Zambia Papers No. 15, Journal of the Institute of African Studies, University of Zambia, 1971, p. 7.

^{5/} Ohadike, P.O. and Habtemariam Tesfaghiorgis, op.cit. p. 74.

Table 1: Some characteristics of in-migrants and out-migrants in rural Keenbe and selected areas of Lusaka, Zambia

Selected Characteristics	R U R A L K E E N B E																L U S A K A															
	IN-MIGRANTS								OUT-MIGRANTS								IN-MIGRANTS								OUT-MIGRANTS							
	2nd round		3rd round		4th round		Total		2nd round		3rd round		4th round		Total		2nd round		3rd round		4th round		Total		2nd round		3rd round		4th round		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Sex																																
Male	20	37.0	10	45.5	5	29.4	35	37.6	31	29.8	1	2.9	5	29.4	37	23.9	122	42.4	73	55.7	71	51.1	266	47.7	182	38.0	61	23.6	39	29.5	282	32.4
Female	34	63.0	12	54.5	12	70.6	58	62.4	73	70.2	33	97.1	12	70.6	118	76.1	166	57.6	58	44.3	68	48.9	292	52.3	297	62.0	198	76.4	93	70.5	588	67.6
Age																																
0-14	15	27.8	8	36.4	11	64.7	34	36.6	42	40.4	7	20.6	5	29.4	54	34.8	127	44.1	42	32.1	34	24.5	203	36.4	187	39.0	83	32.0	40	30.3	310	35.6
15-39	17	31.5	11	50.0	5	29.4	33	35.5	37	35.6	24	70.6	9	52.9	70	45.2	138	47.9	83	63.3	86	61.8	307	55.0	218	45.6	158	61.1	88	68.7	464	53.4
40+	22	40.7	3	13.6	1	5.9	26	27.9	25	24.0	3	8.8	3	17.7	31	20.0	23	8.0	6	4.6	19	13.7	48	8.6	74	15.4	18	6.9	4	3.0	96	11.0
Relationship to h/h																																
Head	1	1.9	-	-	-	-	1	1.1	-	-	-	-	2	11.8	2	1.3	-	-	1	0.8	1	0.7	2	0.4	2	0.4	4	1.5	1	0.8	7	0.8
Wife	5	9.3	-	-	1	5.9	6	6.5	2	1.9	4	11.8	1	5.9	7	4.5	12	4.2	1	0.8	4	2.9	17	3.0	15	3.1	5	1.9	3	2.3	23	2.6
Son	4	7.4	-	-	-	-	4	4.3	12	11.5	-	-	1	5.9	13	8.4	22	7.6	4	3.1	7	5.0	33	5.9	73	15.2	18	6.9	9	6.8	100	11.5
Daughter	4	7.4	4	18.2	1	5.9	9	9.7	37	35.6	18	52.9	5	29.4	63	40.6	31	10.8	11	8.4	12	8.6	54	9.7	132	27.6	82	31.7	36	27.3	250	28.7
Relative	26	48.1	17	77.3	14	82.3	57	61.3	40	38.5	12	35.3	8	47.0	60	38.7	198	68.7	112	85.4	106	76.3	416	74.5	222	46.4	143	55.3	74	56.0	439	50.5
None	14	25.9	1	4.5	1	5.9	16	17.1	10	9.6	-	-	-	-	10	6.5	25	8.7	2	1.5	9	6.5	36	6.5	35	7.4	7	2.7	9	6.8	51	5.9
Marital Status																																
Never Married	36	66.7	18	81.9	11	64.7	65	69.9	75	72.1	17	50.0	11	64.7	103	66.5	227	78.8	105	80.1	97	70.8	429	77.1	381	79.5	186	71.8	90	68.2	657	75.5
Married	14	25.9	3	13.6	4	23.5	21	22.6	23	22.1	12	35.3	5	29.4	40	25.8	49	17.0	23	17.5	29	21.2	101	18.2	88	18.4	66	25.5	39	29.5	193	22.2
Separated	-	-	-	-	1	5.9	1	1.1	-	-	1	2.9	-	-	1	0.6	-	-	1	0.8	2	1.5	3	0.5	-	-	4	1.5	1	0.8	5	0.6
Divorced	2	3.7	1	4.5	1	5.9	4	4.3	2	1.9	2	5.9	1	5.9	5	3.2	10	3.5	1	0.8	5	3.6	16	2.9	10	2.1	2	6.8	2	1.5	14	1.6
Widowed	2	3.7	-	-	-	-	2	2.1	4	3.9	2	5.9	-	-	6	3.9	2	0.7	1	0.8	4	2.9	7	1.3	-	-	1	0.4	-	-	1	0.4
Educational attainment																																
None	31	57.4	7	31.9	12	70.6	50	53.8	55	52.9	15	44.1	6	35.2	76	49.0	106	36.8	33	25.2	41	29.5	180	32.2	130	27.1	60	23.2	34	25.8	224	25.7
Grade 1-4	10	18.5	5	22.7	-	-	15	16.1	19	18.3	4	11.8	3	17.7	26	16.8	32	11.1	22	16.8	12	8.6	66	11.8	79	16.5	33	12.7	7	5.3	119	13.7
Grade 5-7	10	18.5	9	40.9	3	17.6	22	23.7	18	17.3	12	35.3	3	17.7	33	21.3	88	30.6	46	35.1	44	31.7	178	31.9	141	29.4	80	30.9	48	36.4	269	30.9
Form 1-2	1	1.9	1	4.5	2	11.8	4	4.3	9	8.7	3	8.8	5	29.4	17	11.0	31	10.8	12	9.2	17	12.2	60	10.8	56	11.7	27	10.4	8	6.1	91	10.5
Form 3 & Over	2	3.7	-	-	-	-	2	2.1	3	2.8	-	-	-	-	2	1.3	31	10.8	19	14.5	24	17.3	74	13.3	73	15.2	59	22.8	35	26.5	167	19.2

Sum of percent may not add to 100 because of rounding

Although there were more female than male in-migrants in both rural Keembe and Lusaka, the proportion of female in-migrants in Keembe (62.4 per cent) was much higher than that in Lusaka (52.3 per cent). Persons under 15 years of age constituted 36 per cent of all in-migrants in Keembe. In this area in-migrants were quite evenly distributed among the three broad age groups considered. The picture was significantly different in Lusaka where 55.0 per cent of all in-migrants were persons aged 15-39 years. Unlike Keembe, in-migrants aged forty years and over constituted only 0.6 per cent of all migrants. When in-migrants were classified by their relationship to the head of household into which they migrated, it was shown that most of them were relatives of the head of household. Thus, 61.3 per cent of Keembe and 74.5 per cent of Lusaka in-migrants were relatives of the head of household. This evidence confirms the finding from the analysis of family# household structure and change that a significant proportion of the members of urban and rural households were classified as relatives of the heads of household.

Most in-migrants in Lusaka and Keembe were unmarried persons and less than a quarter of them were married persons. There were more divorced persons among in-migrants in Keembe than in Lusaka. The data in Table 1 also show significant differences between persons migrating to Keembe and Lusaka. Thus, while 53.4 per cent of the in-migrants to Keembe had had no formal education, only 32.2 per cent of those in Lusaka had never been to school. In contrast, 29.5 per cent of the Lusaka in-migrants had been educated up to Form 1 or more while only 6.4 per cent of those in Keembe had attained this level of education. These data indicate that migrants to Lusaka were not only young and relatively more educated but unmarried persons who went to live with relatives while searching for paid employment in the modern economic sector or seeking further education. Those migrating to Keembe were relatively much older (27.0 per cent of them were above 40 years of age), uneducated and not always the relations of the heads of household in this area. In fact, 17.1 per cent of the Keembe in-migrants were non-relatives of the heads of household into which they migrated; the corresponding figure for Lusaka was 6.5 per cent.

The evidence with regard to out-migrants was quite different from that observed for in-migrants in the two survey areas. Thus, female out-migrants from Keembe constituted 76.1 per cent of all out-migrants in this area, the corresponding figure for Lusaka was 67.6 per cent. Out-migrants from Lusaka aged 15-39 years constituted 53.4 per cent of all out-migrants from the city and 45.2 per cent of all those from Keembe. Persons aged 40 years and over represented 20 per cent of the out-migrants from Keembe and only 11.0 per cent of those from Lusaka. It is also evident from Table 1 that more Lusaka out-migrants than Keembe out migrants were relatives. Although out-migrants to Lusaka and Keembe were predominantly single persons, there were more out-migrants who were unmarried in Lusaka (75.5 per cent) than in Keembe (66.5 per cent). About a half of all out-migrants from Keembe had no

TABLE 2: Number and Percent of in-migrants in rural Keembe and Lusaka by place of origin.

Place of Origin	RURAL KEEMBE								LUSAKA							
	2nd Round		3rd Round		4th Round		Total		2nd Round		3rd Round		4th Round		Total	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
Central Province	35	64.8	15	68.2	15	88.2	67	72.0	41	14.2	14	10.6	17	12.2	72	12.9
Kabwe	4	7.4	-	-	3	17.6	7	7.5	15	5.2	3	2.3	4	2.9	22	3.4
Mumbwa	-	-	-	-	-	-	-	-	7	2.4	5	3.8	3	2.2	15	2.7
Mkushi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Serenge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other, rural	34	63.0	15	68.2	12	70.6	60	64.5	19	6.6	6	4.5	10	7.2	35	6.3
Copperbelt Province	2	5.7	-	-	-	-	2	2.2	31	10.8	10	7.6	16	11.5	47	8.4
Chililabombwe	-	-	-	-	-	-	-	-	-	-	1	0.8	1	0.7	2	0.4
Chingola	-	-	-	-	-	-	-	-	1	0.4	2	1.5	2	1.4	5	0.9
Kitwe	1	1.9	-	-	-	-	1	1.1	6	2.1	2	1.5	6	4.3	14	2.5
Luanshya	7	-	-	-	-	-	-	-	4	1.4	1	0.8	-	-	5	0.9
Mufulira	-	-	-	-	-	-	-	-	5	1.7	2	1.5	1	0.7	8	1.4
Ndola	1	1.9	-	-	-	-	1	1.1	13	4.5	2	1.5	6	4.3	21	3.8
Other, rural	-	-	-	-	-	-	-	-	2	0.7	-	-	-	-	2	0.4
Eastern Province	-	-	-	-	-	-	-	-	52	18.1	34	25.8	37	26.6	123	22.0
Chama	-	-	-	-	-	-	-	-	1	0.4	-	-	-	-	1	0.2
Chadiza	-	-	-	-	-	-	-	-	1	0.4	-	-	-	-	1	0.2
Chipata	-	-	-	-	-	-	-	-	27	9.4	10	7.6	14	10.1	51	9.1
Katete	-	-	-	-	-	-	-	-	2	0.7	6	4.5	2	1.4	10	1.8
Lundazi	-	-	-	-	-	-	-	-	7	2.4	6	4.5	11	7.9	24	4.3
Petauke	-	-	-	-	-	-	-	-	8	2.8	9	6.8	4	2.9	21	3.8
Other, rural	-	-	-	-	-	-	-	-	20	6.7	24	18.2	23	16.5	72	12.9
Lusaka Province	7	13.0	3	13.6	-	-	10	10.8	59	20.5	28	21.2	11	7.9	98	17.5
Kafue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Luangwa	-	-	-	-	-	-	-	-	2	0.7	1	0.8	1	0.7	4	0.7
Lusaka	7	13.0	3	13.6	-	-	10	10.8	57	19.8	27	20.5	10	7.2	94	16.8

TABLE 2: Number and Percent of in-migrants in rural Keembe and Lusaka by place of origin

Place of origin	RURAL KEEMBE								LUSAKA							
	2nd Round		3rd Round		4th Round		Total		2nd Round		3rd Round		4th Round		Total	
	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%
Luapula Province			2	9.1			2	2.2	5	1.7	-	-	5	3.6		
Kawambwa	-	-	-	-	-	-	-	-	-	-	-	-	1	0.7	10	1.8
Mansa	-	-	2	9.1	-	-	2	2.2	1	3.4	-	-	1	2.2	1	0.2
Samfya	-	-	-	-	-	-	-	-	2	0.7	-	-	1	0.7	4	0.7
Other, rural	-	-	-	-	-	-	-	-	2	0.7	-	-	-	-	33	0.5
Northern Province	-	-	-	-	-	-	-	-	34	11.8	10	7.6	18	12.9	62	11.1
Chinsali	-	-	-	-	-	-	-	-	7	2.4	2	1.5	1	0.7	10	1.8
Isoka	-	-	-	-	-	-	-	-	9	3.1	2	1.5	1	0.7	12	2.1
Kaputa	-	-	-	-	-	-	-	-	-	-	1	0.8	-	-	1	0.2
Kasama	-	-	-	-	-	-	-	-	5	1.7	2	1.5	5	3.6	12	2.1
Luwingu	-	-	-	-	-	-	-	-	1	0.4	-	-	2	1.4	3	0.5
Mbala	-	-	-	-	-	-	-	-	6	2.1	-	-	3	2.2	9	1.6
Mpika	-	-	-	-	-	-	-	-	2	0.7	-	-	1	0.7	3	0.5
Mporokoso	-	-	-	-	-	-	-	-	1	0.4	2	1.5	1	0.7	4	0.7
Other, rural	-	-	-	-	-	-	-	-	3	1.0	1	0.8	4	2.9	8	1.4
North-Western Province	-	-	-	-	-	-	-	-	4	1.4	1	0.8	2	1.4	7	1.3
Kasempa	-	-	-	-	-	-	-	-	1	0.4	-	-	-	-	1	0.2
Mwinflunga	-	-	-	-	-	-	-	-	1	0.4	-	-	-	-	1	0.2
Sdweri	-	-	-	-	-	-	-	-	2	0.7	-	-	1	0.7	3	0.5
Zambezi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other, rural	-	-	-	-	-	-	-	-	-	-	1	0.8	1	0.7	2	0.4
Southern Province	6	11.1	2	9.1	2	11.8	10	10.8	30	10.4	22	16.7	20	14.4	72	12.9
Choma	-	-	-	-	-	-	-	-	5	1.7	4	3.0	3	2.2	12	2.1
Gwenbe	-	-	-	-	-	-	-	-	-	-	1	0.8	-	-	1	0.2
Kalomo	-	-	-	-	-	-	-	-	-	-	5	3.8	-	-	5	0.9
Livingstone	-	-	-	-	-	-	-	-	2	0.7	3	2.3	3	2.2	8	1.4
Mazabuka	5	9.3	1	4.5	-	-	6	6.5	2	0.7	-	-	1	0.7	3	0.5
Monze	-	-	-	-	1	5.9	1	1.1	7	2.4	1	0.8	1	0.7	9	1.6
Namwala	-	-	-	-	-	-	-	-	-	-	4	3.0	-	-	4	0.7
Other, rural	1	1.9	1	4.5	1	5.9	3	3.2	14	4.9	4	3.0	12	8.6	30	5.4

Contd/...

TABLE 2: Number and Percent of in-migrants in rural Keembe and Lusaka by place of origin

Place of Origin	RURAL KEEMBE								LUSAKA							
	2nd Round		3rd Round		4th Round		Total		2nd Round		3rd Round		4th Round		Total	
	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%
Western Province	1	1.9	-	-	-	-	1	1.9	18	6.3	7	5.3	7	5.0	32	5.7
Kaoma	-	-	-	-	-	-	-	-	1	0.4	2	1.5	1	0.7	4	0.7
Kalabo	-	-	-	-	-	-	-	-	1	0.4	2	1.5	4	2.9	7	1.3
Lukulu	-	-	-	-	-	-	-	-	9	3.1	1	0.8	-	-	10	1.8
Mongu	-	-	-	-	-	-	-	-	3	1.0	1	0.8	-	-	4	0.7
Senanga	4	-	-	-	-	-	-	-	3	1.0	-	-	-	-	3	0.5
Sesheke	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other, rural	6	11.1	2	9.1	-	-	8	8.6	23	8.0	7	5.3	13	9.4	43	7.7
Total Urban	13	24.1	6	27.3	4	23.5	23	24.7	243	84.4	116	87.9	102	73.4	461	82.5
Total Rural	41	75.9	16	72.7	13	76.5	70	75.3	45	15.6	16	12.1	37	26.6	98	17.5
TOTAL	54	100.0	22	100.0	17	100.0	93	100.0	288	100.0	132	100.0	139	100.0	559	100.0

education, but 75.7 per cent in Lusaka. About one-fifth (40 per cent) of all Lusaka out-migrants had had Form 3 or higher education.

In general, out-migrants were better educated than in-migrants in both Lusaka and in Keembe. Among the four migrant groups, Lusaka out-migrants were the most educated. Only 26 per cent had never been to school. The corresponding proportions were 53.0, 49.0 and 32.2 per cent for rural Keembe in-migrants, out-migrants and Lusaka in-migrants respectively.

Our findings are consistent with the results of the analysis of internal migration based on 1969 census data. It was estimated that the population of Lusaka was youthful and that 95 per cent was under 45 years. This was due to migration which is age selective. The results of this survey apparently show that female migrants are gradually increasing. It is noted that about 46 per cent of in-migrants in Lusaka in 1969 were females. ^{6/}

Places of origin and destination of migrants

It was noted that the number of females among internal migrants is gradually increasing. In both areas a larger number of migrants were relatives of heads of households. In this section an attempt is made to analyse data on places of origin and destination of migrants.

Table 2 presents in-migrants in rural Keembe and Lusaka by place of origin. It is clear in Table 2 that most Keembe in-migrants (75 per cent) came from rural areas particularly within the Central Province where Keembe is located. In each round about 25 per cent of in-migrants came from urban areas, notably Kabwe and Lusaka which are located near Keembe. It is to be noted that rural to rural migration was the dominant feature in Keembe although there was also urban to rural migration into Keembe.

Table 2 also shows that more than 70 per cent of migrants to Lusaka came from urban areas throughout the country. It is also seen that 22 per cent of in-migrants came from towns in the Eastern Province followed by migrants from Lusaka Province (17.5 per cent)*, in-migrants from towns in the Central Province, the Southern Province and the Northern Province in that order. The data in Table 2 suggest a strong urban to urban in-migration in the Lusaka area.

^{6/} R. Macdonald, "Immigration and social issues in Lusaka" in S.H. Ominde and C.H. Ejiogu eds, Population Growth and Economic Development in Africa, New York, 1972, p. 270.

* Most of this did not constitute migration since 13.2 per cent was merely movement from one part of Lusaka to another.

This strong in-migration stream from the Eastern Province to Lusaka is also borne out by the 1969 census data. About 58 per cent of 19,500 migrants from Eastern Province settled in Central Province which included Lusaka at that time.^{7/} In another study on Chainda, a shanty town in Lusaka it was observed that most migrants were from Chipata.^{8/}

Besides the pattern of rural to rural, urban to urban and rural to urban migration exhibited in Table 2, there exists a pattern of seasonal migration in Zambia. The second round of the survey recorded the largest number of in-migrants in both the rural and urban areas. It should be noted that the second round was conducted in December/January, which is a festive season as well as the time when schools re-open throughout the country.

Table 3 presents out-migrants from Keembe and Lusaka by place of destination. The pattern of strong rural to urban migration is shown in Table 3 and 61.3 per cent of out-migrants from rural Keembe went to urban areas in Lusaka, Kabwe, Mumbwa, Mitwe as well as towns in the Southern Province while 38.7 per cent went to rural areas. The pattern for out-migrants in Lusaka is similar to what has been observed for in-migrants, a strong urban to urban movement. Again, there was strong seasonal out-migration recorded during the second round of the survey. It is also noted that 13.6 per cent of out-migrants from Lusaka went to towns in the Eastern Province and this probably indicates a pattern of return migration.

Determinants of internal migration

It has been shown that there exists not only rural-urban migration in Zambia but also other types of internal migration: namely; the seasonal movements which occur especially in December, the rural-to-rural migrations which were identified to exist in the rural area and the urban-to-urban migration streams which appear to be prevalent among modernized and industrialised areas in Zambia. In order to understand the reasons for these types of internal movements, it is necessary to analyse data on reasons for moving given by migrants in both Keembe and Lusaka survey areas.

The reasons for joining or leaving a household in the rural and the urban subsamples are given in Table 4. It should be noted that large proportions of migrants did not give reasons for moving, the percentages were 69.9 and 66.2 in rural Keembe and Lusaka respectively.

7/ Ohadike and Habtemariam, *op.cit.* p. 77

8/ P.L. Mwiya et al., Chainda Lusaka: Portrait of a Peri-urban settlement. University of Zambia, Lusaka, 1979.

Table 3 : Number and Percent of out-migrants in Rural Kasumba and Lusaka by place of destination

Place of Destination	RURAL KASUMBA								LUSAKA							
	2nd Round		3rd Round		4th Round		Total		2nd Round		3rd Round		4th Round		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Central Province	44	42.3	14	41.2	8	47.1	66	42.6	49	10.2	22	8.5	16	12.2	87	10.0
Kabwe	8	7.7	2	5.9	2	11.8	12	7.7	19	4.0	7	2.7	3	2.3	29	3.3
Mumbwa	2	1.9	2	5.9	-	-	4	2.6	16	3.3	8	3.1	2	1.5	26	3.0
Mkushi	-	-	2	5.9	-	-	2	1.3	2	0.4	1	0.4	-	-	3	0.3
Serenje	2	1.9	-	-	-	-	2	1.3	2	0.4	1	0.4	-	-	3	0.3
Other, Rural	33	31.7	8	23.5	6	35.3	46	29.7	10	2.1	5	1.9	11	8.4	26	3.0
Copperbelt Province	5	4.8	4	11.8	1	5.9	10	6.5	67	14.0	36	13.9	17	13.0	120	13.8
Chililabombwe	-	-	-	-	-	-	-	-	2	0.4	-	-	-	-	2	0.2
Chingola	-	-	-	-	-	-	-	-	3	0.6	-	-	-	-	3	0.3
Kiteta	3	2.9	2	5.9	1	5.9	6	3.9	22	4.6	9	3.5	4	3.1	35	4.0
Lusanshya	-	-	-	-	-	-	-	-	2	0.4	6	2.3	-	-	8	0.9
Mafikira	-	-	-	-	-	-	-	-	7	1.5	1	0.4	2	1.5	10	1.2
Mwala	1	1.0	2	5.9	-	-	3	1.9	24	5.0	19	7.3	8	6.1	51	5.9
Other, Rural	1	1.0	-	-	-	-	1	0.6	7	1.5	1	0.4	3	2.3	11	1.3
Eastern Province	1	1.0	3	8.8	-	-	4	2.6	63	13.2	41	15.8	14	10.7	118	13.6
Chama	1	1.0	-	-	-	-	1	0.6	-	-	2	0.8	-	-	2	0.2
Chadane	-	-	-	-	-	-	-	-	1	0.2	-	-	-	-	1	0.1
Chipata	-	-	-	-	-	-	-	-	33	6.9	18	6.9	4	3.1	55	6.3
Katete	-	-	1	2.9	-	-	1	0.6	4	0.8	9	3.5	3	2.3	16	1.8
Lundazi	-	-	-	-	-	-	-	-	6	1.3	1	0.4	2	1.5	9	1.0
Peterson	-	-	2	5.9	-	-	2	1.3	17	3.5	8	3.1	4	3.1	29	3.3
Other, Rural	-	-	-	-	-	-	-	-	1	0.2	3	1.2	1	0.8	5	0.6
Lusaka Province	26	25.0	9	26.5	5	29.4	40	25.8	167	34.9	97	37.5	18	13.7	282	32.5
Kafue	-	-	-	-	-	-	1	0.6	1	0.2	-	-	-	-	1	0.1
Lusanga	-	-	-	-	1	5.9	-	-	-	-	-	-	-	-	-	-
Lusaka	26	25.0	9	26.5	4	23.5	39	25.2	166	34.7	97	37.5	18	13.7	281	32.3
Other, Rural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nampula Province	2	1.9	-	-	-	-	2	1.3	18	3.8	4	1.5	-	-	22	2.5
Kavumbwa	-	-	-	-	-	-	-	-	5	1.0	1	0.4	-	-	6	0.7
Mansa	2	1.9	-	-	-	-	2	1.3	10	2.1	3	1.2	-	-	13	1.5
Semfya	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other, Rural	-	-	-	-	-	-	-	-	3	0.6	-	-	-	-	3	0.3
Northern Province	-	-	-	-	-	-	-	-	19	4.0	18	6.9	14	10.7	51	5.9
Chinsali	-	-	-	-	-	-	-	-	3	0.6	1	0.4	-	-	4	0.5
Isaka	-	-	-	-	-	-	-	-	2	0.4	2	0.8	-	-	4	0.5
Esopate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kasama	-	-	-	-	-	-	-	-	6	1.3	8	3.1	2	1.5	16	1.8
Luringa	-	-	-	-	-	-	-	-	1	0.2	-	-	-	-	1	0.1
Mwala	-	-	-	-	-	-	-	-	3	0.6	-	-	3	2.3	6	0.7
Mwika	-	-	-	-	-	-	-	-	3	0.6	3	1.2	2	1.5	8	0.9
Mporokoso	-	-	-	-	-	-	-	-	1	0.2	1	0.4	1	0.8	3	0.3
Other, Rural	-	-	-	-	-	-	-	-	-	-	3	1.2	6	4.6	9	1.0
North-Western Province	-	-	-	-	-	-	-	-	6	1.3	1	0.4	3	2.3	10	1.2
Kasempa	-	-	-	-	-	-	-	-	2	0.4	-	-	-	-	2	0.2
Mwinilunga	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solwezi	-	-	-	-	-	-	-	-	2	0.4	1	0.4	2	1.5	5	0.6
Zambezi	-	-	-	-	-	-	-	-	1	0.2	-	-	-	-	1	0.1
Other, Rural	-	-	-	-	-	-	-	-	1	0.2	-	-	1	0.8	2	0.2
Southern Province	6	5.8	2	5.9	2	11.8	10	6.5	44	9.2	18	6.9	16	12.2	78	9.0
Choma	-	-	-	-	-	-	-	-	3	0.6	3	1.2	4	3.1	10	1.2
Gwenbe	-	-	-	-	-	-	-	-	1	0.2	-	-	-	-	1	0.1
Kalomo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Livingstone	5	4.8	1	2.9	-	-	6	3.9	30	4.2	3	1.2	1	0.8	24	2.8
Marabuku	-	-	1	2.9	1	5.9	1	0.6	2	0.4	3	1.2	1	0.8	6	0.7
Moma	-	-	-	-	-	-	-	-	8	1.7	6	2.3	1	0.8	15	1.7
Nampala	-	-	-	-	-	-	-	-	-	-	-	-	1	0.8	1	0.1
Other, Rural	1	1.0	1	2.9	1	5.9	3	1.9	10	2.1	3	1.2	8	6.1	21	2.4
Western Province	18	17.3	-	-	-	-	18	11.6	12	2.5	12	4.6	3	2.3	27	3.1
Kasoa	-	-	-	-	-	-	-	-	-	-	1	0.4	1	0.8	2	0.2
Lokulu	-	-	-	-	-	-	-	-	1	0.2	1	0.4	-	-	2	0.2
Monga	-	-	-	-	-	-	-	-	6	1.3	4	1.5	2	1.5	12	1.4
Senanga	-	-	-	-	-	-	-	-	-	-	1	0.4	-	-	1	0.1
Seshake	-	-	-	-	-	-	-	-	2	0.2	4	1.5	-	-	6	0.7
Other, Rural	18	17.3	-	-	-	-	18	11.6	3	0.6	1	0.4	-	-	4	0.5
Other Province	3	2.9	5	14.7	1	5.9	9	5.8	40	8.4	11	4.2	33	25.2	84	9.7
TOTAL URBAN	61	58.7	25	73.5	9	52.9	95	61.3	447	93.3	243	93.8	101	77.1	791	92.0
TOTAL RURAL	43	41.3	9	26.5	8	47.1	60	38.7	32	6.7	116	6.2	30	22.9	78	9.0
TOTAL	104	100	34	100	17	100	155	100	479	100	259	100	131	100	869	100

Table 4: Number and Percent of In-migrants and Out-migrants in rural Zambia and Lusaka by Reason of Migration

Reason for moving	RURAL ZAMBIA												LUSAKA											
	In-migrants						Out-migrants						In-migrants						Out-migrants					
	2nd round	3rd round	4th round	Total	No.	%	2nd round	3rd round	4th round	Total	No.	%	2nd round	3rd round	4th round	Total	No.	%	2nd round	3rd round	4th round	Total	No.	%
To visit	3	5.6	9	40.9	5	29.4	17	18.3	15	14.4	4	11.8	-	-	19	12.3	43	14.9	24	18.2	16	11.5	83	14.8
To join husband	10	18.5	-	-	1	5.9	11	11.8	26	25.0	13	38.2	6	35.3	45	29.0	13	4.5	4	3.0	10	7.2	27	4.8
Left husband	1	1.9	1	4.5	-	-	2	2.2	1	1.0	4	11.8	1	5.9	6	3.9	6	2.1	3	2.3	1	0.7	10	1.8
Medical care	1	1.9	-	-	-	-	1	1.1	2	1.9	-	-	-	-	2	1.3	22	7.6	11	8.3	1	0.7	34	6.1
To take up paid job	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	2.1	1	0.8	23	16.5	30	5.4
Left job	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
For training	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.4	-	-	-	-	3	0.2
Widow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	41	76.0	15	59.0	11	64.4	65	69.9	62	59.6	13	38.2	10	58.8	85	54.5	108	68.3	88	67.4	83	59.7	378	68.3
Total	56	100.0	22	100.0	17	100.0	93	100.0	104	100.0	34	100.0	19	100.0	155	100.0	288	100.0	132	100.0	139	100.0	479	100.0

Sum of percent may not add to 100 because of rounding

Nevertheless, the data can be used to throw some light on reasons for migration. The main reason for migration given by in-migrants in rural Keembe was "to visit" while the second major reason was "to join husband". On the other hand, the major reasons for moving for out-migrants were "to join husband" and "to visit" in that order.

It is interesting to note that the reasons for moving given by migrants in the urban area are slightly different from those of migrants in the rural area. The main reasons were "to visit", "to receive medical care", "to take up paid job", and "to join husband" in that order. Whereas, 4.5 per cent of in-migrants in Lusaka moved "to join husband", the corresponding percentage in rural Keembe was 11.5. Most out-migrants from Lusaka left in order "to visit", "to join husband", "to receive medical care", "to leave husband" and "to take up paid job".

It is clear from the above analysis that the major reason for moving in Zambia is to visit relatives in other parts of the country particularly the urban areas. It seems that migrants have a positive perception about urban life and sometimes mere visits to cities and towns tend to raise and boost their social prestige. Migrants also move into urban areas in order to improve their level of education and job prospects. ^{9/} Our analysis, however, showed that an insignificant proportion moved in order to improve upon their training.

Consequences of internal migration

Our analysis so far has shown that there is a high rate of internal migration in Zambia and that the number of female migrants is gradually increasing indicating perhaps movements of dependants and wives from villages to urban areas. What are some of the consequences and effects of internal migration on development particularly in Keembe Land Lusaka?

Apart from the rural to urban migration which is mainly due to differences in the development between urban and rural areas, there are movements of migrants from rural areas to Keembe and other rural areas. These movements contribute to agricultural production in the commercial farms in and around Keembe. The return migrants particularly urban to rural are known to transfer capital and knowledge acquired in the urban areas to further development efforts in the rural areas.

Internal migration in Zambia has been identified with labour migration to the copper mining towns, and the commercial and industrial centres along the central old line-of-rail. The coming together of people with different skills and abilities to some extent accounts for the continued development of industries in these urban areas.

It should be pointed

^{9/} Alan Simons et.al. Social change and internal migration: A review of research findings from Africa, Asia and Latin America, TDRC--TS 6e, Ottawa, 1977, pp. 19-26.

It should be pointed out, however, that overcrowding and other negative aspects of urbanization are known to disrupt provision of certain essential services. For instance, the city of Lusaka has housing, sewage and refuse disposal problems. The central government also has to cope with shortages of school facilities and overloading of services such as health facilities and transportation.

Summary and conclusion

This paper has attempted to use prospective data on migration to examine some aspects of migration in rural Keembe and selected areas in Lusaka. It was shown that Keembe and the selected areas in Lusaka were migration areas. For instance, Keembe recorded 93 and 155 in-migrants and out-migrants respectively during the survey period while the corresponding figures for Lusaka were 55 and 370.

Another way of looking at the magnitude of internal migration in these areas is indicated by the net and migration turnover rates. The net turnover rate of 72.8 per 1000 indicates that at least 13.2 persons per 1000 population left Keembe area and that in general there were 72.8 persons per 1000 population involved in movements to and from Keembe. The turnover rate in Lusaka shows that 109 persons per 1000 population were involved in migration.

Analysis of the characteristics of migrants shows that there were more female than male in-migrants in both Keembe and Lusaka. Most of these in-migrants were concentrated in the 0-14 and 15-39 age groups and also most of them were wives, sons, daughters or relatives of the head of household. More than half (57.4 per cent) of the in-migrants were illiterate while only 5.6 per cent had attained educational level equivalent to Form 1 and above.

Most out-migrants from Keembe were females. For every male out-migrant there were 3 female out-migrants. There were more in-migrants than out-migrants who had never attended school, 53.3 as compared with 49 per cent.

There were slightly more female than male in-migrants in Lusaka; 52.3 as compared with 47.7 per cent. There were also more relatives of household head who were in-migrants in Lusaka than was the case for Keembe, although the proportion of sons and daughters was almost the same. Whereas only a third of in-migrants in Lusaka had never been to school the corresponding proportion for Keembe was 54 per cent.

There were more female than male out-migrants, the ratio was 2.1:1. Compared with Keembe there were more out-migrants aged 15-39; 53.4 as compared with 45.2 per cent. Only 11 per cent of out-migrants aged 40 years or more left Lusaka area while the corresponding proportion for Keembe was 20 per cent. In other words, one out of every 10 out-migrants

in Lusaka was 40 years or more while in rural Keembe it was one out of every five out-migrants. Among the four migrant groups, Lusaka out-migrants were the most educated. Only 26 per cent had never been to school whereas, the corresponding proportions were 53.3, 49.0 and 32.2 per cent for rural Keembe in-migrants, out-migrants and Lusaka in-migrants respectively.

Analysis of in-migrants in Keembe and Lusaka by place of origin shows that most Keembe in-migrants (75 per cent) came from rural areas particularly within the Central Province where Keembe is located. It was shown that rural to rural migration was the dominant feature in Keembe. On the other hand, more than 30 per cent of in-migrants in Lusaka came from urban areas throughout the country. Besides the pattern of rural to rural, urban to urban and rural to urban migration prevalent in Keembe and Lusaka, there was also a pattern of seasonal migration. The second round recorded the largest number of in-migrants in both the rural and urban areas. The second round was conducted in December/January which is a festive season as well as the time when schools re-open throughout the country.

The main reason for migration given by in-migrants in Keembe was "to visit" while the second major reason was "to join husband". On the other hand, the major reasons for out-migrants were "to join husband" and "to visit" in that order. The reasons given by migrants in the urban area are slightly different from those given by migrants in the rural area. The main reasons were "to visit", "to receive medical care", "to take up paid job" and "to join husband" in that order. Whereas, 4.3 per cent of in-migrants in Lusaka moved "to join husband", the corresponding percentage in Keembe was 11.3 per cent. Most out-migrants from Lusaka left in order "to visit", "to join husband", "to receive medical care", "to leave husband" and "to take up paid job". Our analysis, however, showed that an insignificant proportion moved in order to improve their training.

It was also indicated that there is a high rate of internal migration in Keembe and Lusaka. Undoubtedly, this high rate of internal migration has given rise to population re-distribution with its attendant problems in both places of origin and destination. In order not to stretch the already scarce resources at places of destination beyond their limits, it is of utmost importance for policy makers to initiate and implement integrated rural development programmes in order to discourage people from moving. In addition, basic social amenities such as schools, hospitals, good drinking water, housing, electricity should be provided to make it worthwhile to live in the rural area.

It should be emphasized that migration in this analysis included "visitors" as a category. The findings therefore inflate the magnitude of movement as regards out-and-in-migration to different localities. However, it is common practice for "visitors" to over stay their period of visit and therefore become migrants.

WOMEN AND THE FUTURE DEVELOPMENT OF ZAMBIA

In 1974 the United Nations member countries observed the International year of women in order to project and promote the differing roles of women in various international communities. The Lagos Plan of Action also recognises the important role women could play in socio-economic development of Africa.

In most developing countries the role of women in running the affairs of their countries is obscure; the men invariably tend to dominate in many fields. However, in Zambia it was recognised almost immediately after the attainment of independence, that women should play a more important role in the socio-economic development of the country. It is through these efforts that in running the affairs of the country, the women have been integrated in the Government through the Women's League. In Zambia a number of women are occupying important positions among them members of the Central Committee, Ministers, Judges, Permanent Secretaries. Further a progressively increasing number of women are employed in regular jobs, which were predominantly dominated by men before independence. Indeed women have all along been involved in agricultural activity especially in the rural areas.

The women in Zambia have equal rights as men. In Section 13 of the Zambian Constitution it is stated that every person in Zambia is entitled to the fundamental rights and freedoms of others and for public interest. This is regardless of sex. Thus, efforts are being made in Zambia to fully integrate women into Developmental effort. Indeed the goal has not yet been fully achieved, but the progress made towards its achievement is recognizable.

Demographic Characteristics of the Zambian Population

Zambia is one of the developing countries which have the fastest growing population in the world. As a result of high growth of population in the 1970s (3.1 per cent per annum) which was above the African average of 2.9 per cent per year, total population of Zambia exceeded 5.6 million by 1980. If the present trend continued (and there are no indications at the moment of altering this trend), Zambia's population would be more than 10 million by the end of this century. Zambia is also one of the most urbanised African countries, more than two fifth of the total population being in urban areas.

Table 1 shows that about 47 per cent of the total population is under 15 years of age. This pattern of age distribution is characteristic of a young population with high fertility and moderately declining mortality. This implies an increased dependency burden, and thus requiring a large social expenditures for education and housing as

well as requiring employment opportunities for a growing labour force.

Table 1: Percentage distribution of Population by broad age-groups, 1963 - 1981

Age Group	1963 Census (Africans only)	1969 Census	1981 (Estimate)
0 - 14	44.6	45.0	46.6
15 - 59	51.6	49.6	49.2
60+	3.0	4.0	4.2
All ages	100.0	100.0	100.0

Source: Central Statistical Office, Lusaka, Various Publications.

The 1960 Census of population revealed a sex ratio of 962 males per 1,000 females which means a preponderance of females over males in Zambia's population. The sex ratio has changed marginally from 960 to 962 during the inter-censal period 1969 - 1980.

Table 2. Sex Ratios (Males per 1,000 Females) by Province, 1969 and 1980

Province	1969 Census	1980 Census
Central	1,021	1,015
Copperbelt	1,009	1,060
Eastern	950	938
Luapula	923	913
Lusaka	1,006	1,040
Northern	885	891
North-Western	897	913
Southern	974	963
Western	867	837
Total Zambia	960	962

Source: Central Statistical Office, 1980 Census of Population and Housing, Preliminary Report, January 1981, Lusaka.

The sex ratio was more than 1,000 in Central, Copperbelt and Lusaka provinces, whereas the Southern Province which is also on the old line-of-rail had a sex ratio of 968 in 1980. In all the remaining provinces, the ratio was less than 925. This confirms the sex selective migration to the old line-of-rail and underscores the cardinal role women play in economic activity in rural areas.

Table 3: Percentage distribution of households by household size and sex of head of household, Zambia, 1974

Size of Household (Persons)	Sex of head of household		
	Male	Female	Total
1	5.0	5.3	11.6
2	9.6	4.4	14.0
3	9.3	4.4	13.7
4	9.0	3.7	13.5
5	9.3	2.0	12.1
6	8.0	1.9	9.9
7	6.6	1.3	7.9
8	5.1	0.7	5.9
9	3.5	0.5	4.0
10+	6.6	0.0	7.4
Total	73.6	26.4	100.0

Source: Central Statistical Office, 1974 Sample Census - Second Report.

According to the 1974 Sample Census, there were 959,000 households in Zambia, of which 26.4 per cent were headed by females. The mean household size of a household with female heads was smaller than those with male heads.

Education

It is recognised that there is positive relationship between educational development and overall economic development. Thus the development process is greatly enhanced with the provision of trained manpower in different professions, that are crucial to the socio-economic development of the country. Indeed, in Zambia, there is a wide realisation among individuals that education is a proxy for a number of variables that interact to enhance individual and national development. Thus high literacy rate is conducive to development. However, in Zambia under the colonial regime education was considerably neglected. The situation with regard to women was deplorable.

Although marked improvement has been made in the field of education, one would say it is still far from satisfactory. Access to education is less for girls than boys especially at higher levels of education.

Table 4(a) shows number of primary and secondary pupils between 1964 to 1980. The enrolment of girls in primary schools was about 43.2 per cent of the total enrolment in 1964. However, the proportion of girls enrolment has been steadily rising, and in 1980, it was about 46.5 per cent. A similar trend is observed in case of enrolment of female students in secondary schools. However, the proportions of enrolment are much lower. In 1964 the proportion of female enrolment was 29.6 per cent of the total, by 1980 the percentage of girls enrolled in secondary schools was 35.1 per cent. Indeed this confirms the UNICEF/GRZ situation analysis that access to education is less for girls than for boys especially at higher levels, thus reflecting prevailing attitudes in society towards the employability of women in the cash economy.

Table 4(a) Student enrolment in primary and secondary schools, Gambia, 1964 - 1980

	1964	1966	1968	1970	1972	1974	1976	1978	1980
Primary School	375,417	473,432	608,393	694,670	777,373	853,191	907,887	964,475	1,041,939
Total	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)
Boys	214,381	265,583	339,928	335,676	423,692	470,191	492,399	516,352	554,504
	(56.8)	(56.1)	(55.8)	(55.5)	(55.1)	(54.8)	(54.3)	(53.5)	(53.2)
Girls	163,536	207,849	268,965	308,994	349,180	388,000	414,968	448,117	487,435
	(43.2)	(43.9)	(44.2)	(44.5)	(44.9)	(45.2)	(45.7)	(46.5)	(46.8)
Secondary School	13,553	23,939	42,355	52,472	60,051	65,746	73,885	83,842	94,495
Total	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)
Boys	9,760	17,294	23,843	35,205	39,943	43,564	51,071	58,591	61,351
	(70.4)	(72.1)	(68.1)	(67.1)	(66.5)	(66.2)	(65.3)	(66.0)	(64.9)
Girls	4,093	6,695	13,545	17,267	20,108	22,200	26,934	30,251	33,244
	(29.6)	(27.9)	(31.9)	(32.9)	(33.5)	(33.8)	(34.2)	(34.0)	(35.1)

Note: Figure in brackets denote percentages to total.

Source: Ministry of Education, Educational Statistics, 1978, and unpublished data for 1980.

Table 4 (b) Enrolment by sex and type of education, Zambia, 1970-1980

Type of Education	Y E A R								
	1970	1972	1974	1975	1976	1977	1978	1979	1980
<u>Teacher Training</u>									
Male	1258 (58.6)	1464 (59.3)	1712 (59.0)	1939 (59.9)	2023 (59.4)	2226 (58.9)	2407 (61.4)	2652 (60.2)	
Female	888 (41.4)	1004 (40.7)	1188 (41.0)	1231 (40.1)	1303 (40.6)	1554 (41.1)	1516 (38.6)	1754 (39.0)	1895 (42.6)
Total	2146 (100.0)	2468 (100.0)	2900 (100.0)	3070 (100.0)	3406 (100.0)	3780 (100.0)	3923 (100.0)	4406 (100.0)	44445 (100.0)
<u>Technical and Vocational</u>									
Male	....	....	....	4002 (88.6)	4732 (115.0)	4682 (82.0)	4531 (78.4)	3929 (74.7)	3557 (74.5)
Female	....	....	....	618 (11.4)	837 (15.0)	1027 (10.0)	1247 (21.6)	1332 (25.3)	1355 (25.5)
Total		4123	5666	5421 (100.0)	5569 (100.0)	5709 (100.0)	5778 (100.0)	5261 (100.0)	5312 (100.0)

Note: '....' means data not available

Figures within brackets indicate percentages to total.

Source: As in Table 4(a)

Enrolment of females in Teacher Training Colleges has shown some slight ~~fluctuation~~ between 39 per cent and 43 per cent, as can be seen from Table 4(b). However, the proportion of enrolment into Technical and Vocational institutions rose from 11.4 per cent in 1975 to about 26 per cent in 1980. It can be observed that the proportion was still below 50 per cent by 1980.

Female Labour Force Participation Rate

The Labour Force is defined as those persons who are either working, or actively seeking work usually above 15 years of age. The Labour Force participation rate for a sex-age group is the proportion of that group which is in the labour-force. As stressed in the report on Equality, Development and Peace (1980), in Zambia, Female labour was not sufficiently tapped especially in the formal sector. Labour migration especially during the pre-independence, concerned the rural - urban migration of males. Thus women and children were left behind in the rural areas. However, with improved social amenities in the urban areas, and some aspects of rural development, a number of females, especially those who have had chances of benefiting from the expanded education programmes have been getting employed more easily in the Public and Industrial Sectors. The Table below gives the female labour force participation rates in Zambia.

Table 5: Female Labour Force Participants Rates (Percentages)
by Province, 1969, 1979 and 1984

Province	1969	1979	1984
Central (including Lusaka)	31.5	32.3	32.9
Copperbelt	31.3	32.0	32.7
Eastern	23.2	29.4	30.1
Luapula	23.7	29.8	30.0
Northern	25.4	29.5	30.1
North-Western	32.2	33.4	33.7
Southern	31.8	32.6	32.7
Western	32.6	32.3	33.2
Total Zambia	30.5	31.6	32.1

Source: Central Statistical Office, Labour Force Projections,
Lusaka

From Table 5 it can be observed that participation of females in the labour force was 30.5 per cent in 1969, 31.6 per cent in 1979 and was projected to be 32.1 per cent by 1984. This clearly shows that labour force participation rates for females are low as is the case in many developing countries. It is interesting to examine the labour participation rates of females by age. As recorded in the UNICEF country profile for Zambia, there was a high participation at ages 15-19 which favourably compared with that of the males (45 per cent). The participation rate dropped at 20-24 years, the beginning of child-bearing for most of the females, the rates were consistently low during the active child-bearing/weaning period of ages 25-44, and noticeable gradual rise during the menopause with the highest participation rate of 50 per cent between ages 55-59. Compared to other developing countries the rates are high because as earlier pointed most women 15 and over are actively involved in agricultural activity in the rural areas.

Employment

Employment in the formal sector increased from 24,760 in 1975 to 28,700 in 1979, thus registering an increase of about 16 per cent between 1975 and 1979.

Table 6: Female Employees by Industry in Zambia, 1975 and 1979

Industry	JUNE 1975	JUNE 1979
Agriculture, Forestry and Fisheries	1,160	1,780
Mining and quarrying	3,070	3,300
Manufacturing	2,570	2,960
Electricity and water	190	170
Construction and allied repairs	710	950
Distribution, restaurants and hotels	2,110	2,650
Transport and communications	1,030	1,520
Finance, insurance, real estate and business services	2,060	2,740
Community, social and personal services*	11,360	12,340
All industries	24,760	28,700
All industries (Both Sexes)	353,800	374,000

* Excluding domestic services

Source: Central Statistical Office, Monthly Digest of Statistics,
1980, 1981.

The highest number of female employees were in the category of community, social and personal services, indeed about 43 to 38 per cent of the female employees were working in their traditional occupation as teachers, nurses and social workers. In general, it is important to note the proportion that women employed in the formal sector was about 7 per cent of total employment in 1975 rising to only about 8 per cent in 1979. This means that although there has been an increase in the employment of females in the formal sector, the increase has been considerably marginal.

Women in the Rural Areas

As we have discussed earlier in this paper, only a small proportion of Zambian women are in paid formal employment, the majority of those who live in rural areas are basically engaged in subsistence farming. It should be recognised that women contribute to agricultural activity from childhood to old age. However, according to Mutemba (1982) their methods of production have remained inefficient such that most of the female producers have been an under-utilised resource. This implies that labour power is not fully utilised and tapped. This renders production to be low relative to existing possibilities.

Further, McCarmack has observed that in spite that women still continue to produce most of the family food crops, extension services are mostly focussed on men as cash croppers and not women (their access to services in their own right is limited). This in turn affects female agricultural production adversely. Realising that 60 per cent of the total female population lives in rural areas, the under utilisation of the majority greatly suppresses the generation of high income for rural women, at the national level some 25 per cent of households were headed by women, but their participation in agriculture is weaker, both in terms of areas cultivated and in terms of output and cash sales.

Summary and Conclusion

From the foregoing analysis, it can be observed that women in Zambia are playing a vital role in all walks of life. The population of Zambia constitutes more females than males. The ratio being 962 males for every 1,000 females. In the field of education, the proportion of females at various levels of education has continuously increased after independence. But the proportion is still low for higher levels of education. The same is true in the field of formal sector employment. It is necessary to increase the earning capacity of women as a part of development efforts. Due to sex selective rural - urban migration, women in the rural areas may have to do jobs which were handled by men before. Thus women's work can increase as a result of rural development.

Women in Zambia still continue to produce most of the family food crops. The Party and its Government has identified integrated rural

development as a key to the rural development process. Training the rural women to produce more can stimulate rural development. In both rural and urban areas, women must be encouraged and assisted to set up business and other enterprises that are not traditionally viewed as female work.

It should be stressed that further emphasis on education and employment of women will not only delay the marriage of women and family formation, but will go a long way in enhancing the socio-economic development of the country. The contribution of women to the future development of Zambia is crucial, therefore they have to be intergrated in all areas of social, cultural and economic development at all levels. As remarked by the Hon. ~~MCC~~ Mrs. Chibesa Mankasa, "socio-economic development could easily be accelerated if women became active participants in all aspects of development."

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INTERRELATIONSHIPS AMONG INFANT AND CHILDHOOD MORTALITY,

SOCIO-ECONOMIC FACTORS AND FERTILITY IN ZAMBIA:

A Case Study of Lusaka and Keembe

Z A M B I A

(ERRATA)

UNITED NATIONS
ECONOMIC COMMISSION FOR AFRICA

ERRATA

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8	... problems.£	... problems.
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53	172 per cent	1.2 per cent
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145	still birth	stillbirth
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147	1144763	147
148	11409	148
149	q_2^2, q_3^3, q_5^5	q_2, q_3, q_5
150	11501	150
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151	1512	151
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156	1567	156
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158	11583	158
159 (b)	A- endix I Page 2	Appendix I
159 (c)	Appendix I Page 3	Appendix I
159 (d)	Appendix I Page 4	Appendix I
160	1160	160
163	11634	163
164	16645	164
167	116678	167
168	11669	168
174	1174	174
176	1/ Maurice Kiro ...	1/ Maurice King, et al, <u>Nutrition for Developing Countries</u> , Oxford University Press, Nairobi 1972 pp 1.4-1.5.

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179	11798	179
180	25.59	25 - 59
184	of rail	line of rail
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221	* Pill plus other ...	*Pill plus other methods in Lusaka
222	22072	222
222	Table 2. Percentage ...	Table 2. Percentage distribution of Women by marital status and methods of birth regulation known.
223	22308	223
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277	were personseageda...	were persons aged 15 39 years.
281	but7 25e7 ...	but 25.7 per cent in Lusaka . About one-fifth (19 per cent) of all
285	Keembe Land Lusaka?	Keembe and Lusaka?
286	these areas ... over	these areas is indicated by the migration turn-over rate. The turn-over rate of 72.8 per 1000
295	labour	labour
295	lofy femalesfbyaage	of females by age.
296	possibbilliites	possibilities.
Annex I		
Page 1	Shast i	Shastri

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