

INTERCENSAL NET MIGRATION IN KENYA : DISTRICT LEVEL ANALYSIS

BY

JOHN OBWAI WAKAJUMMAH.

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A thesis submitted in partial fulfillment of the requirements
for the degree of Master of Arts in Population Studies ,
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DECLARATION.

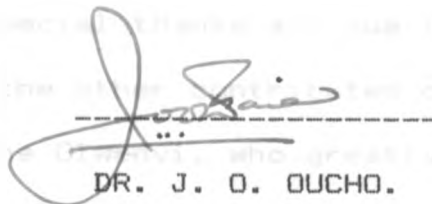
This thesis is my own original work and has not been presented for a degree in any other University.

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This thesis has been submitted for examination with our approval as University Supervisors .

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My other intellectual debts, which are many, will be evident from the bibliography of the thesis; they go primarily to the body of scholars who have made remarkable contributions to the study of migration within and outside the country.

Finally, special thanks are due to my colleagues who in one way or the other contributed constructive criticisms and to Miss Cathrine Olwenyi, who greatly assisted in typing this work .

DEDICATION

TO

FATHER: JECTON ASOL;

MOTHER: HADA ABIERO;

and

GUARDIAN: APPELEBYN NGODE.

For their generous support and encouragement
throughout my academic life.

ABSTRACT.

Using 1969 and 1979 census data sets, this study estimates inter-censal age-specific net migration rates for Kenya using a non-stable population model - the Age Specific Growth Rate Technique - developed by Preston and Coale.

The result portrays considerable regional variations in age specific net migration rates. Major urban areas are found to register net gains in the population of young adults aged between 10 and 24 years, while most of the rural districts tend to experience net out-flow of population in similar age brackets . Major urban districts are also found to experience net out-flow of children population aged between 5 and 9 years.

The study further indicates that most of the former non-scheduled districts and other re-settlement districts in Kenya tend to register population net gains in all age groups. Similar phenomenon is observable in most districts along Kenya's borders with neighbouring countries. Most of the major cash crop-producing districts are found to gain population of children aged between 10 and 14 years.

In view of these findings, the last part of this thesis makes conclusions and puts forth recommendations that are pertinent to policy making. These include, among others, the intensification of integrated approach to regional development; less emphasis on capital-intensive industries;

expansion of agro-industrial establishments in the major out-migration districts and control of population movements along the borders. The existing gaps of knowledge in the field of study are also highlighted in this section.

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CHAPTER 1

THE GENERAL INTRODUCTION

1.1: STATEMENT OF THE PROBLEM:

The three components of population dynamics- fertility, mortality and migration - are very crucial in demographic studies not only because of their profound influence on population structure but also because such influence is felt in socio-economic spheres of national development.

Although migration is by no means the most important determinant of population change, its significance in shaping the patterns of population movement can hardly be overlooked. For instance, due to migration and natural increase, the urban population of Kenya increased at a rate of 7.2% per annum between 1969 and 1979, causing numerous problems for both the receiving and the sending areas.

Our understanding of migration phenomenon has, however, been hampered by lack of estimates based on modern techniques of migration measurements. So far the existing migration estimates in Kenya are based on cross-tabulation of the place-of-birth statistics with place-of-enumeration data.

Given the rising magnitude of migration related problems at regional and sub-regional levels, Kenya faces a pressing demand to apply some of the modern techniques of migration measurement so as to obtain accurate estimates for such migration problems to be fully understood. This study seeks to address itself to the problem of migration

estimation using one of the recently developed measurement techniques in the field of study.

1.2: OBJECTIVES OF THE STUDY

In the light of the above stated problem, the objectives of this study will be:

(1) To estimate intercensal net migration rates for all the 41 districts of Kenya using the Age-Specific Growth Rate (ASGR) technique;

(2) To examine the spatial variation in the age pattern of the obtained net migration rates.

1.3: SCOPE AND SIGNIFICANCE OF THE STUDY

The study estimates age specific net migration rates for the forty one districts. It will therefore be a macro-level study based on the last two national censuses, i.e., 1969 and 1979 population censuses. The study will add new dimension to the study of migration by portraying the age-specific pattern of net migration at district levels.

Moreover, the the study will enable us to assess the the suitability of a modern technique of migration estimation (developed in advanced nations) in measuring internal migration in Kenya .

1.4: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

1.4.1 METHODOLOGICAL WORK IN MIGRATION:

Different methods have been used to estimate intercensal net migration both in the developed and developing countries. These vary from those based on data derived from vital registration system, or continuous population registers, to those which depend on sample surveys or census counts of the population of component areas at two successive censuses. The choice and/or application of each method is determined by the availability and nature of data as well as by the kind of information required from subsequent migration estimates.

Cross-tabulation of the place of birth statistics with place-of-enumeration data has been the most common method used in estimating net migration, especially in developing countries where very few censuses have been undertaken. However, as more and more countries began to have regular censuses, new methods of migration estimates have been devised.

Zacharia (1964) used the National Growth Rate technique to study migration in the Indian sub-continent. The same method was used with much success by the Directorate of National Sample Survey (India 1962). The method has not however been applied in Africa where very few reliable censuses have been undertaken.

The Vital Statistics Method (Balancing Equation) has been widely used in developed countries (Elridge,

1965; Hamilton, 1966; Siegel, 1952 and Leroy, 1967). Its application in developing countries has nevertheless been restricted by its requirements as will be shown in chapter 2.

Survival Ratio Method has been found to be useful in estimating net migration in statistically under-developed countries (Siegel et al, 1952; Hamilton, 1967). However, like the foregoing methods, this technique has not been applied in Kenya mainly due to the short history of census taking in the country.

If place-of-birth statistics are available for different areal units at two consecutive censuses, it is possible to make indirect estimates of intercensal net migration rates for each unit using the method which was applied in the United States by Elridge and Yun Kim (1968). Despite its success in the United States, this method has not been applied in Kenya. This is attributable to the fact that most of the migration studies in Kenya have been based on sample surveys since very few reliable censuses have been carried out in the country so far.

Most of the migration estimation techniques devised in developed countries have for, a long time, relied on the Stable Population Model. It was not until recently that Preston and Coale (1982) developed a technique which could be used to estimate migration for non-stable populations. This study presents the first attempt to apply this new technique - the Age-Specific Growth Rate (ASGR) technique - to Kenyan data.

1.4.2 : MIGRATION WORK IN KENYA:

A number of migration studies have been carried out in Kenya over the last two decades. These vary from works which attempt to make typologies of population movements to those which endeavour to examine major determinants of such movements by focusing upon the characteristics of migrants. Though some of these studies have been based on national census (Ominde, 1968a; Rempel, 1977; Huntington, 1974; and Beskok, 1981) most of the migration work in Kenya are based on sample surveys.

Given the concern caused by rural-urban drift of young people (mostly school-leavers) in post-independence period, pioneering students of migration (Ominde, 1968a; 1968b; Rempel, 1969, 1970, 1974 & 1977) tended to concentrate on the rural-to-urban type of migration.

Ominde (1968a), credited for having been the first scholar to define typologies for Kenya, identified two major types of migration, namely, rural-urban and rural-rural migration patterns. He attributed the observed patterns to the economic disparity between different geographic areas of Kenya. He identified Coast, Rift Valley and Nairobi provinces as the major destination areas for migrants from other provinces.

Knowles and Anker (1977), however, identified two kinds of rural-rural migration besides rural-urban migration:

(a) Rural-to-rural migration for resettlement

purposes into areas which were formerly reserved

for white settlement during the colonial period;
(b) Rural-to-rural migration to obtain employment
in the cash crop estate sector.

In a study which sets out to determine factors which contribute to the process of internal migration in Kenya, Knowles and Anker (1977) concludes that migration in Kenya proceeds by stages and that land pressure appears to encourage out-migration. The preponderance of males among rural-urban migrants and the temporary nature of this type of migration are noted as some of the characteristics of internal migration.

Rempel (1977) has given a vivid picture of internal migration for all districts in Kenya. He not only analysed birth place data provided in the 1969 Kenya census to determine the extent and direction of internal migration but also used the available information on sex ratios, age distribution and education to examine the type of people who migrate. This study reveals, among other things, extensive out-migration of children from Nairobi, the dominance of rural-to-rural migration over other types of migration and the dominance of young adults (seeking employment) among rural to urban migrants. Coast province and northern part of Kenya are found to form fairly self-contained units as far as internal migration is concerned, that is, the people born in the two regions rarely migrate to other districts outside the regions.

In a much earlier study of rural-urban migration based on survey data, Rempel (1974) found out that although the number of rural-urban migrants appeared large from the

perspective of the receiving centres, the proportion of the rural population moving to towns was very small indeed. The same study revealed that to the extent that people did move across district boundaries, the majority moved to other rural areas. This findings confirms Knowles and Anker's observation that rural-to-rural flows account for the majority of Kenya's internal migrants. Rempel further revealed that although rural -to-urban migration appeared to vary among ethnic groups, it was more pronouced in the regions where possibilities for cash crop farming were limited. A similar macro-level study carried out by Huntington(1974), using 1962 and 1969 censuses, singled out ethnic linkage as a major determinant of rural to urban migration. Beskok(1981), analysing Life-time migration data provided in the 1979 census, portrays considerable regional variations in internal migration.

Several studies of migration in Kenya have been based on sample surveys. The research carried out by Nyaoke (1974). sought to determine the causal factors of rural-to-urban and reverse urban to rural migration in Kenya. Economic factors such as income differential, job opportunity and land density and non-economic factors such as level of education and clan contacts were observed to have a bearing on the two types of internal migration. The study further revealed that the rate of rural-urban migration was dependent on the rate of economic development of the sending areas, that is, in more economically developed areas more people showed high propensity

to migrate to urban centres. This observation may partly be attributed to the role of information flow in migration decision. Job opportunity, as far as primacy of determinants of rural-to-urban and return migration were concerned, ranked first and foremost in significance, followed by income differential and land density.

Migration studies carried out by sociologists (Mbithi, 1975; Migot, 1977; Nakitare, 1974; and Khasiani, 1978) found out that selective rural - urban population drift contributes immensely to the continued rural under-development as it is both a brain and energy drain. It not only strikes at the rural labour force thus resulting in a high dependency ratio, but also disrupts families because only female spouses, the weak, the old, the illiterate and young school children are left at home while the educated and active labour force migrate to towns.

The bias in study towards rural-urban movement has in recent years motivated students of migration to venture into a relatively virgin area of rural-to-rural migration. In a study probing into the question as to why people tend to migrate from one rural area into another, Matingu (1974) finds out that most migrants are either landless or near landless. The migrants are generally under fifty years of age and have very little or no formal education. Such migrants tend to migrate with their families to the areas of destination because the majority of them are married and migrate mainly into areas where their kinsmen have settled.

Oucho (1981) has also explored the nature and pattern of rural -to-rural migration and the implications of such movement for rural development. Taking Kericho Tea Estates Complex as a case study, Oucho discovers that rural-to-rural migration is engendered by the presence of relatives and friends at the area of destination. Rural-to-rural migration is not only found to be an important stage of step-wise migration leading to rural-urban migration stream and counter-stream, but it is also found to be highly selective of migrants by ethnicity. Kericho is found to be a single major economic island in Western Kenya to which migrants gravitate before undertaking long-distance or step-wise migration elsewhere in the country.

X In a recent work, Oucho and Mukras (1983) inject an entirely new dimension to the study of rural to urban migration by investigating the positive aspects of such movement. Basing the study on the data collected from two rural districts (Kisumu and Siaya) and the city of Nairobi and Kisumu municipality, they discover that migrants never sever connections with their home places. They often maintain strong socio-cultural links with their districts of birth through home visits as well as making urban-rural remittances. The home areas often benefit from urban-rural cash remittances. Such evidence of urban-rural ties therefore help to boost rural

economy through cash remittances. This study, in essence, underscores the temporary nature of rural-urban type of migration in that the migrants, faced with urban insecurity, maintain strong links with their home places to establish social and economic base for future retirement.

While the migration literature reviewed here is by no means exhaustive, it permits some generalisations with regard to the nature and pattern of internal migration in the country:

(a) The current migration pattern in Kenya is a legacy whose influence is felt but whose origin can be traced back to the colonial period. This is because the colonial government created a new socio-economic environment that persisted throughout the colonial era and which persisted in the post-independence period.

(b) Internal movements in Kenya have tended to gravitate towards the poles of attraction such as settlement, cash-cropping and urban areas. Such tendencies have made Rift Valley, Nairobi and Coast provinces favourite destination regions for most migrants.

(c) Migration has been found to be selective of people by ethnicity, age, sex, marital status, education and economic status.

(d) Rural-to-urban migrants have been found to be mainly single, male, young adults, with above average level of formal education. Their movements are

engendered by landlessness at the areas of origin; probability of getting a job in urban areas; economic differential between areas of origin and areas of destination and ethnic linkages.

(e) Urban-to-rural migrants are mainly return migrants consisting of people who have either failed to secure jobs in towns or who have accumulated money in the urban areas to invest in rural enterprises.

(f) Rural-to-rural migrants have been found to consist of: (1) migrants who move for wage employment in cash crop estates.

(2) migrants who move for land colonisation in settlement schemes, newly developed areas and in areas of low population density.

(3) refugees who flee from political and environmental hazards.

(4) Squatters who move to settle on land they do not own.

Since migration is selective of people by certain characteristics, it results in rural-to-rural migrants being older than rural-urban migrants; they are mostly landless and have very low levels of formal education. Women and children have been found to be essential partners in this type of migration process - essential in the sense that they constitute the main labour force necessary for developing newly acquired land.

1.4.3 SHORTCOMINGS OF MIGRATION WORK IN KENYA:

Important as they are, the reviewed contributions are by no means devoid of weaknesses and/or gaps. The following gaps are easily detectable from the existing body of migration literature in Kenya:

(a) Although migration differentials and/or determinants are well documented, much of documentation is mainly based on micro-level sample surveys thus making it exceedingly difficult to make accurate generalisation on internal migration for the whole country.

(b) Except for the work of Ominde (1968a.), Rempel (1977), Huntington (1974) and Beskok (1981), inadequate effort has been devoted to analysing migration trends and patterns on the basis of information derived from national censuses. This is particularly true with the 1979 census.

(c) Even less attention has been given to estimating migration using some of the modern technique which have been successfully used in developed countries.

Estimation of intercensal net migration for Kenya using one of these modern techniques constitutes the focus of this study. The Age Specific Growth Rate technique used here is particularly suitable for Kenya since it takes into account changing fertility and mortality schedules experienced in the country in recent years.

1.5 THEORETICAL FRAMEWORK:

Modern methods of migration estimation have, in the past, answered many demographic questions on the basis of stable population model in which birth rates, population growth rates and mortality schedules are assumed to have been constant over a long period of time. While this model (stable population) has worked well with data from the developed countries with a nearly fixed fertility and mortality schedules, it has limited application in Kenya, where rapidly declining mortality and fluctuating fertility are currently being experienced. For instance, Total Fertility in Kenya rose from 6.8 in 1962 to 7.6 in 1969 and 8.1 in 1979, the last figure suggesting an increase in fertility of about 18% (Kenya, 1985). On the other hand, the proportion of children dying of mothers aged 15 to 19 years declined from 0.146 in 1962 to .101 by 1977/78 period. Adult Mortality is expected to have followed the same course.

The Age-Specific Growth Rate technique forms a radical departure from the stability assumption of a stable population model. This technique for indirect estimation of net migration rates is based on the assumption that population growth rates change from one age group to another. Moreover, population growth is attributed to changing fertility and mortality schedules as well as to varying migration rates.

Given the non-stability assumption of this new model, it is theorised that migration, being an adjustment to changing

environmental, socio-economic and even demographic factors, is moulded by different processes that have emerged over time, creating different age-specific migration patterns within the country. Given the inter-dependence between migration and socio-economic as well as demographic variables, one should expect spatial variation with respect to the rates, patterns, typologies, and direction of migration in Kenya. This is particularly so since migration has been found to be selective of people by economic status, social status and demographic characteristics.

1.6 THE OPERATIONAL HYPOTHESES:

From the foregoing theoretical statements, the study advances the following hypotheses:

- (1) Given regional disparity in socio-economic, environmental, demographic and other factors in Kenya, the obtained net migration rates are likely to vary from one region to another;
- (2) Major Urban Centres are likely to experience net gain in the population of young adults while their rural counterparts are likely to experience net gain in population at much older ages;
- (3) Major Settlement areas are likely to experience net gain in population affecting all age groups.

1.7 OPERATIONAL DEFINITION OF CONCEPTS:

It is necessary to define some of the key concepts used in this study.

(1) In-migration and In-migrant:

Every move is an in-migration with respect to the district of destination ,and an in-migrant is a person who enters a migration-defining district by crossing its boundary from some point outside the district ,but within the same country (UN, 1970). Thus, a person enumerated outside his ditrict of birth during census counts is an in-migrant in the district of enumeration.

(2) Out-migration and Out -migrant:

Every move is an out-migration with respect to the district of origin and an out-migrant is a person who departs from a migration defining district by crossing its boundary to a point outside it ,but within the same country (UN,1970). Thus, a person unumerated outside his ditrict of birth during census counts is an out-migrant from his district of birth.

(3) Life-time migrant and Life-time migration:

A person whose district of residence at the census date (time of enumeration) differs from his district of birth is a life-time migrant. The number of such persons in a population is commonly refered to as "Life time migration."

(4) Area of origin and Area of destination:

For migration ,the area from which a move is made is the area of origin while the area in which a move terminates is the area of destination. In life-time migration, these are place of birth and place of enumeration respectively.

(5) Migration-Stream and Migration Counter-Stream:

Migration stream is abody of migrants having a common area of origin and acommon area of desination within a given period .counter-stream is in essence the reverse of migration stream ,that is ,movement in opposite direction during the same period .

(6) Net Migration:

The term net migration refers to the balance of movements in opposing directions . With reference to a specific area ,it denotes the difference between in-migration and out-migration .In a given area ,if in-migration exceeds out-migration ,the net gain to that particular area is classifiabile as net in-migration. In the opposite case, it amounts to net out-migration.

CHAPTER 2

METHODS OF ESTIMATING INTERCENSAL NET MIGRATION

2.0 INTRODUCTION.

This chapter reviews some of the methods that have been used to estimate intercensal net migration in different parts of the world. Such a background will not only be instructive for depicting the varying requirements, procedures and application of various methods of migration estimation but also in presenting a bird's eye view of the methodology the present study partakes of. Some of these methods are:

- (a) The National Growth Rate Method ;
- (b) The Vital Statistics cum Balancing Equation Method;
- (c) The survival Ratio Method;
- (d) The Age Specific Growth Rate Technique;
- (e) Estimation of Intercensal Net Migration From Birth-Place & Place of Residence Statistics;

2.1 THE NATIONAL GROWTH RATE TECHNIQUE.

(a) Requirement: The technique relies on data which are readily available. It requires national and regional populations for two consecutive censuses.

(b) Procedure: The procedure for estimating intercensal net migration by this method may be symbolically expressed as :

$$M_i = \left[\frac{P(i,1)-P(i,0)}{P(i,0)} - \frac{P(T,1)-P(T,0)}{P(T,0)} \right] \quad (2.1)$$

Where,

M_i - Net migration rate for district i

$P(i,1)$ - Population of district i at the end of the intercensal period.

$P(i,0)$ - Population of the district i at the beginning of the intercensal period.

$P(T,1)$ - The national population at the end of the intercensal period.

$P(T,0)$ - The national population at the beginning of the intercensal period.

K - a constant which is usually 100 or 1000

(c) Comment: For any district considered, the obtained rate greater than the national average is interpreted as net in-migration, and a rate less than the national average as net out-migration. Though this method is meritted for its ease of computation, it becomes cumbersome when many districts have to be considered. Moreover, it cannot show the direction of population movement. That is, it cannot show which of the districts may be gaining or losing population to which other district. (Shryock and Siegel, 1976)

2.2 THE VITAL STATISTICS METHOD (BALANCING EQUATION).

(a) Requirement: This method requires virtually complete registration of vital events (i.e birth and deaths) during the intercensal period. Such events should be recorded by date of occurrence and not the date of registration. They should also be computed by place of residence and not the place of occurrence.

(b) Procedure: Given the necessary requirements, intercensal net migration is obtained by;

$$M_i = [P(t+n) - P(t)] - [nB_t - nD_t] \quad (2.2)$$

where,

M_i - Intercensal net migration for district i

n - is the intercensal time interval,

$P(t+n)$ - is the population of district i at time

$t+n$,

$P(t)$ - is the population of district i at time t

nB_t - is the number of births occurring at district i

during the interval t to t+n

nD_t - is the number of deaths occurring at district i

during the interval t to t+n.

In the equation, the first part refers to the intercensal population change while the second part indicates natural increase during the same intercensal period. Intercensal net migration is therefore estimated by subtracting natural increase from the corresponding intercensal population change.

(c) Comment: Although this model has been successfully used in developed countries and its value in detecting under-enumeration or over-enumeration in the census widely recognised, it has hardly been applied in developing countries. The vital statistics (births and deaths) in many parts of the world are not often available in the kind of details required by this method. Moreover, in developing countries vital statistics are generally of poor quality and errors inherent in them are likely to be reflected in migration estimates by this method. The estimation of net migration by this method is further affected by changes in political boundary thus, making regional comparability of such estimates exceedingly difficult. (UN, 1970)

2.3 THE SURVIVAL RATIO METHOD.

Regardless of whether direct questions on migration have been asked in the census, it is possible to estimate net intercensal migration on the basis of census counts of the population of different districts at two successive censuses by using survival ratio methods namely:

(a) Life Table Survival Ratio Method and

(b) Census Survival Ratio Method.

The first method is used when the area in question has appropriate life table while the latter is preferable where such a table is not readily available.

Requirement: Whichever of these survival ratios are used, the techniques require the number of persons classified by age and sex as enumerated in each district at two successive censuses. The Life Table Survival Ratio Method also requires a set of life table survival ratios which can be applied to the population at the first census in order to derive an estimate of the number of persons expected to survive to the second census.

Procedure: The procedure may be expressed symbolically as follows:

$$M1(x) = P_{x+n, t_n} - S \cdot P_{x, t} \quad (2.3)$$

Where as,

$M1(x)$ is the net migration of survivors among persons aged x at the first census in a given area.

Such persons will be aged $x+n$ at the second census.

$P_{x, t}$ -is the population aged x in that area at the first census

$P_{x+n, t+n}$ -is the population aged $x+n$ in the same area at the second census separated from the first census by n years.

S - is the life table survival ratios.

The difference between the enumerated population at the second census and the expected survivors from the first census is the estimate of net migration.

Comment: The survival ratio method actually measures mortality plus relative coverage and reporting errors in the two censuses. Due to this advantage it is unnecessary to correct for the disturbing influence of the errors in the census as these errors are in effect excluded from the estimates of net migration. This advantage aside, the method cannot be used to estimate migration among social and economic groups, mainly because their corresponding characteristics (e.g. income, marital status and occupation) change frequently and unpredictably during intercensal period. (UN, 1970)

2.4 THE AGE-SPECIFIC GROWTH RATE TECHNIQUE.

Demographers have often relied on stable population model to estimate demographic parameters even for countries where stability assumption of the model is not applicable. This has been made inevitable due to the absence of alternative appropriate technique. In 1982, Preston and Coale developed a technique which could be used to estimate Mortality, Fertility and Migration for non-stable populations.

What follows is the procedure to estimate net intercensal migration by Age Specific Growth Rate Technique developed by these two scholars.

In the stable population, the age distribution at age "a", that is, the proportion of people at age "a" is given by:

$$c(a) = b \cdot \exp(-ra) \cdot p(a) \quad (2.4)$$

where,

b - is the birth rate,

r - is the growth rate,

p(a) - is the probability of survival upto age "a" from birth.

In the above stable population equation the growth rate r is assumed to be constant through all ages. A modification of the equation is to assume constant growth rate just within specific age groups but for all ages. The equation is thus modified to:

$$c(a) = b \cdot p(a) \cdot \exp\left(-\int_0^a r(x) dx\right)$$

The foregoing formula attributes population growth to natural increase. However, growth in population is accounted for both by natural increase and population change due to migration. To take care of migration, the formula may be written as follows:

$$c(a) = b \cdot p(a) \cdot \exp\left(-\int_0^a [r(x) + e(x)] dx\right)$$

where,

e(x) is the net out-migration rate.

c(a) and "b" can be replaced by N(a)/N and N(0)/N respectively.

The formula therefore becomes:

$$N(a) = N(0) * p(a) * \exp\left(-\int_0^a [r(x) + e(x)] dx\right)$$

$$\frac{N(a)}{N(0) * p(a)} = \exp\left(-\int_0^a [r(x) + e(x)] dx\right)$$

$$\ln \frac{N(a)}{N(0) * p(a)} = -\int_0^a [r(x) + e(x)] dx$$

$$= -\int_0^a r(x) dx - \int_0^a e(x) dx$$

Therefore,

$$\int_0^a e(x) dx = -\ln \frac{N(a)}{N(0) * p(a)} - \int_0^a r(x) dx$$

This implies,

$$\int_0^{a+5} e(x) dx = -\ln \frac{N(a+5)}{N(0) * p(a+5)} - \int_0^{a+5} r(x) dx$$

$$\int_0^{a+5} e(x) dx - \int_0^a e(x) dx = -\ln \frac{N(a+5)}{N(0) * p(a+5)} + \ln \frac{N(a)}{N(0) * p(a)}$$

$$= -\int_0^{a+5} r(x) dx + \int_0^a r(x) dx$$

Therefore,

$$\int_a^{a+5} e(x) dx = \ln \frac{N(a)}{N(a+5)} * \frac{p(a+5)}{p(a)} - \int_0^{a+5} r(x) dx$$

$$5 * e = \ln \frac{N(a)}{N(a+5)} * \frac{p(a+5)}{p(a)} - 5 * r \quad (2.5a)$$

$$e = \frac{-1}{5} \ln \left[\frac{N(a)}{N(a+5)} * \frac{p(a+5)}{p(a)} \right] - \frac{r}{5}$$

i.e.

$$e = \frac{-1}{5} \ln \left[\frac{N(a+5)}{N(a)} * \frac{p(a)}{p(a+5)} \right] - \frac{r}{5} \quad (2.5b)$$

The above formula expresses the out-migration rate between age "a" and "a+5" in terms of:

- (1) Probability of survival at age "a" and "a+5",
- and
- (2) Age-Specific growth rate between age "a" and "a+5".

Requirements: From the above formula it can be seen that the technique require the following:

- (a) The appropriate life tables from which the probability of survival can be obtained.
- (b) Two consecutive population censuses computed by five year age groups. These two sets of data will enable us to calculate the age-specific growth rates required by this technique.

If implemented from age 0, this technique also requires intercensal births; if this cannot be obtained, then the estimation should begin at age 5, with $N(a)$ estimated by averaging numbers in the adjacent 5-years age groups, as will be shown in the procedure below.

Procedure: To obtain the age specific growth rate we can use the formula:

$$r_{5a} = \frac{1}{t_2 - t_1} \ln \frac{N_{5a}(t_2)}{N_{5a}(t_1)}$$

where $N_{5a}(t_1)$ and $N_{5a}(t_2)$ are the number of persons between ages "a" and "a+5" at times t_1 and t_2 when the two censuses were taken.

To estimate the number of persons at exact age "a" denoted by $N(a)$, we first average the number of persons in the two censuses age-wise:

$$\bar{N}_{5a} = \frac{N_{5a}(t_2) + N_{5a}(t_1)}{2}$$

The obtained result is further averaged in the adjacent 5 years age group as shown below:

$$N(a) = \frac{\bar{N}_{5a} + \bar{N}_{5a-5}}{10}$$

Given this formula, the intercensal net migration rate can be obtained by formula (2.5b):

$$e_{5a} = \frac{-1}{5} \ln \left[\frac{N(a+5)}{N(a)} \right] * \frac{p(a)}{p(a+5)} - r_{5a}$$

To compute intercensal net migration rate by Age-Specific Growth Rate Technique, this study will use the arithmetic mean for 1969 and 1979 censuses and the Life tables of 1979 based on child mortality estimates obtained by Kichamu, (1986).

Note: The Notation $e(x)$ used in the above derivations is not the life expectancy at age "x" but it is rather the Net Out-Migration Rate.

Comment: Unlike the stable population model, The Age-Specific Growth Rate Technique does not assume constant mortality schedule. This makes it suitable for application in developing countries where both birth and death rates have been changing rapidly during recent times.

Moreover, in this technique the census interval does not need to be 5 years or a multiple of 5. However, like the above discussed techniques this method cannot give us the direction of population movement.

2.5 THE ESTIMATION OF INTERCENSAL NET MIGRATION FROM BIRTH-RESIDENCE STATISTICS.

Requirements: The technique requires two consecutive censuses. It also requires the number of life time in-migrants and the the corresponding life time out-migrants in a particular area at two consecutive censuses.

Procedure: Given these requirements an estimate of intercensal net migration for a given unit is given by:

$$\text{Net } M = [I(t+n) - O(t+n)] - [S(1)*I(t) - S(o)*O(t)] \quad (2.6)$$

Where, $I(t)$ and $I(t+n)$ are the number of life time in-migrants in a particular area at times t and $t+n$

$O(t)$ and $O(t+n)$ are the corresponding life-time out-migrants,

$S(1)$ and $S(o)$ are the intercensal survival ratios.

$S(1)$ and $S(o)$ give the proportions of $I(t)$ and $O(t)$ that will survive the intercensal period.

Thus the steps involved in the calculation of net migration are as follows:-

Step 1: Obtain for each area, the totals by age, population born in each area and enumerated elsewhere in country.

Step 2: Calculate a set of survival ratios for each area of birth by dividing the figures for the later census by the corresponding (same area of birth and same age of cohort) figures for the earlier census:

$$S = \frac{AB(2) + BB(2)}{AB(1) + BB(1)}$$

Where, $AB(2)$ - are people born in A and enumerated in B at the second census.

$BB(2)$ - are people born in B and enumerated in B at the second census.

AB(1) and BB(1) - refers to the corresponding figures at the first census.

Step 3: Multiply the population of a given area at the first census by the survival ratios to obtain the expected number of survivors at the second census.

Step 4: Subtract the expected survivors from the enumerated population at the second census to obtain estimates of net migration by age and area of birth. Repeat this step for each area of residence.

Comment:

This technique has been found to give more accurate estimates of net migration than the "Migration streams" technique discussed below. (Elridge and Yun Kim - 1968). It is therefore regarded as a refinement of migration stream technique aimed at serving the demographer's interest more adequately. Despite this merit, the technique may be affected by errors associated with place of birth statistics discussed later in this section.

2.6 SUPPORTING MODELS:

As pointed else where in this section, this study uses life tables based on child mortality estimates obtained by Kichamu (1986) .Likewise, it uses migration stream figures extracted from 1979 population census (see the appendix) .

Since the two models are used to support the Age Specific Growth Rate technique used in this study, it is necessary to explain their derivation.

2.6.1 ESTIMATION OF NET MIGRATION BY MIGRATION STREAMS:

This method ,unlike the ones discussed above is not an an intercensal estimation technique. It will however be used in this study not to estimate intercensal net migration, but to support the Age-Specific Growth Rate Technique by depicting the direction of population movement.

The model uses the place-of-birth and place-of-enumeration statistics to measure various acts of internal migration.(such as inter-regional migration rates, in and out migration rates, net migration rate and gross migration rate).

Procedure: The estimation procedure involves making a matrix showing place of enumeration and place of birth as shown in table 2.

TABLE 2: Migration Matrix.

PLACE OF ENUMERATION (i)			PLACE OF BIRTH (j)			
Downwards			Row-wise			
i \ j	1	2	3	4	5	TOTAL
1	n(1,1)	n(1,2)	n(1,3)	n(1,4)	n(1,5)	N(1,j)
2	n(2,1)	n(2,2)	n(2,3)	n(2,4)	n(2,5)	N(2,j)
3	n(3,1)	n(3,2)	n(3,3)	n(3,4)	n(3,5)	N(3,j)
4	n(4,1)	n(4,2)	n(4,3)	n(4,4)	n(4,5)	N(4,j)
5	n(5,1)	n(5,2)	n(5,3)	n(5,4)	n(5,5)	N(5,j)
TOTAL	N(i,1)	N(i,2)	N(i,3)	N(i,4)	N(i,5)	N(..)

$N(..)$ - the total population

i - district of enumeration

j - district of birth

$n(i,j)$ - indicates the number of people living in district i and born in district j , including those living in the district of birth $i=j$.

$\sum n(i,j) = N(..)$ (total population).

$\sum n(i=j)$ - the number of people living in district of birth (non migrants).

$N(..) - \sum n(i=j)$ is the interdistrict migration stream which may be denoted by $M(i,j)$.

The inter-district migration rate is estimated by:

$$(a) \quad DMR = \frac{\sum n(i,j) - \sum n(i=j)}{N(..)} * 100$$

That is, total population minus number of non-migrants divide by total population times a constant.

(b) In migration Rate is estimated by:

$$IR = \frac{\sum M(1,j)}{N(1,j)} * 100$$

where,

IR - is the in-migration rate

$M(1,j)$ - is the migrants living

in district 1 who were born in

the district j ,

$N(1,j)$ - is the total population born in

district 1.

(c) Out-migration Rate is computed by:

$$OR = \frac{\sum M(i,1)}{N(1,j)} * 100$$

where, $\sum M(i,1)$ - is the migrants from region 1
to the ith region and

$N(1,j)$ - is the total population in region 1

(d) Net Migration Rate is obtained by:

$$NR = \frac{[\sum M(i,j) - \sum M(i,1)]}{N(1,j)} * 100$$

where,

$M(i,j)$ - is in-migration to region 1

$M(i,1)$ - is out-migration from region 1

$N(1,j)$ - is the total population in region 1.

(e) Gross Migration Rate is estimated by:

$$GR = \frac{[\sum M(1,j) + \sum M(i,1)]}{N(1,j)} * 100$$

Thus, gross migration rate is calculated by adding in-migrants and out-migrants to obtain the numerators. The sum is divided by the total population of the region considered. A constant is then applied to the ratio.

Comment: Unlike other methods reviewed in this section, the place of birth method is not limited to the estimates of net movements. The method can show net migrants, in-migrants, out-migrants and specific stream of migration. It may therefore depict migration direction. Despite its merits, the method may be affected by boundary changes.

Likewise it does not take account of persons who have made several movements but had returned to their district of birth at the time of the census.

2.6.2 THE LIFE TABLE:

In this section we shall show how to derive a life table from estimates of child mortality. To estimate child mortality, the Coale-Trussell technique which required the information on children ever born (CEB) and children surviving (CS) or children dead (CD) classified by mothers' age was used. The female population (FPOP) classified by five-year age groups was also required.

Given these requirements the probability of dying at age x was given by the formula:

$$q(x) = K(i) D(i)$$

for $x = 1, 2, 3, 4, 5, 10, 15,$ and 20

and $i = 1, 2, 3, 4, 5, 6,$ and 7 which represents the age groups $15-19, 20-24, \dots, 45-49$.

$$K(i) = a(i) + b(i)P(i)/P(2) + c(i)P(2)/P(3)$$

where $a(i)$, $b(i)$ and $c(i)$ are Trussell's coefficients for estimating child mortality.

$P(i)$ is the parity for age group i while $D(i)$ is the Proportion of children dead for age group i .

That is,

$$P(i) = \frac{(CEB)}{(FPOP)} \quad \text{for age group } i$$

and

$$D(i) = \frac{(CD)}{(CEB)} \quad \text{for age group } i$$

it should be noted that the probability of dying $q(x)$ as used here is for both sexes. To obtain the $q(x)$ for females or males the sex ratio of 105 males per 100 females was used. thus, the $q(x)$ for females was given by:

$q(x)$ for females = $q(x)$ for both sexes divided by 1.05 while $q(x)$ for males was obtained by multiplying 1.05 by the $q(x)$ for both sexes.

For each sex, mortality levels were estimated from the Coale-Demeny life table using $l(2)$, $l(3)$ and $l(5)$ calculated from $q(x)$ above. To estimate the mortality levels, interpolation was applied. Likewise, estimates of $P(x)$ for all ages was obtained by interpolation.

The mortality levels obtained were used to construct a life table. Each $P(x)$ was multiplied by the radix $l(0)$ to obtain the number of survivors at age x i.e. $l(x)$. Other life table functions were then calculated as follows:

(i) nPx , the probability of surviving between age (x) and $(x+n)$ was given by the formula:-

$$nPx = l(x+n)/l(x)$$

(ii) nq_x , the probability of dying between age (x) and $(x+n)$ was given by the formula:

$$nq_x = 1 - nP_x.$$

(iii) ndx , the number of persons dying between age (x) and $(x+n)$ was given by:

$$ndx = l(x) - l(x+n).$$

(iv) nL_x , the persons years lived between age (x) and $(x+n)$ where:

$$1L_0 = 0.3 * l(0) + 0.7 * l(1)$$

$$4L_1 = 1.3 * l(1) + 2.7 * l(5)$$

$$5L_5 = 2.5 * l(5) + l(10)$$

$$\&L(75) = l(75) * \log[l(75)]$$

where $\&$ represents infinity.

(v) $T(x)$, the total population from age (x) , was given by:

$$T(x) = T(x+n) + nL_x$$

(vi) $e(x)$, the expectation of life at age (x) , was given by:

$$e(x) = T(x) / l(x)$$

2.7 SOURCE AND QUALITY OF MIGRATION DATA:

The most common sources of migration data in Kenya are the censuses and sample surveys. This study uses 1969 and 1979 population censuses to estimate net migration rates for Kenya. It, therefore, becomes inevitable to shed some light in the nature and quality of census data.

Net migration data from censuses are of two types:

(a) Data derived from direct or indirect questions about mobility as they relate to place of birth, place of residence at a fixed past date and the duration of such residence.

(b) The second type consists of estimates of net migration derived from total counts of population by age and sex at two consecutive censuses.

The questions on which migration data in Kenya are based may be classified into two groups, namely, current-migration questions and open-period questions. Current-migration questions emphasise on a fixed period of time which must be recent. These types of questions cover the duration of residence and the place of residence at a fixed date. The main problem with duration of residence questions is associated with repeated migration. Thus, it becomes difficult to estimate migration pattern of people who have made more than one move. Moreover, asking the place of residence at a fixed period is often faced with the problem of memory lapse given that a ten-year census interval is usually punctuated by several moves.

Open-period questions are distinguished from current migration questions in that they contain no dating reference. The examples of open-period questions include those which ask for birth place, place of usual residence or place of previous residence without reference to the dating of such movements. Though it is reasonable to expect that a simple question on birth place would be answered with accuracy and completeness, there are possibilities of response error in the generated data. If, for instance, a person has lived in one place for a long time, there may be a tendency to give it as his birth place, leading to the error of unintentional misstatement of birth place. There may also be mis-reporting of birth place for political reasons. Illegal immigrants may claim their present places of residence in the host country as their respective birth places to avoid possible repatriation.

It is also common for persons born in relatively unknown places to prefer stating the names of better known places as their birth places so as to specify their geographic places of birth more clearly. Moreover, people born in hospitals outside their parents' district of normal residence may state such places as their districts of birth leading to yet another set of error.

The migration data in Kenya, as in many other developing countries, are often computed by district of birth and district of enumeration. Given that such data are computed on the basis of current and/or open-period questions, it is

reasonable to expect them to be characterised by various types of mis-statement error. Despite their shortcomings, censuses remain the major sources of data from which migration estimates should be derived. This study therefore seeks to estimate net migration for Kenya on the basis of 1969 and 1979 censuses. To limit the amount of error inherent in the censuses, the non-stated responses are excluded from the computed figures in this study. The study also uses Life-time migration data compiled by Dr. J.O. Oduho (1979 Census). A section of this data set is provided in the Appendix.

CHAPTER 3

ESTIMATION OF INTERCENSAL NET MIGRATION RATES: A CASE STUDY OF NAIROBI.

3.0: INTRODUCTION.

In the previous chapter, the varying requirements and procedures of various methods for estimating intercensal net migration have been reviewed. Taking Nairobi as a case study, this chapter presents a practical application of the Age-Specific Growth Rate technique in estimating intercensal net migration rates. Since this technique involves the use of life table, it will be necessary to show explicitly how a life table is constructed. The Trussel (Brass type) model for estimating child mortality and the Coale-Demeny life table will be used to determine the appropriate mortality level for Nairobi. It is this level which will enable us to derive the probability of survival from birth to specific age "a", denoted by $p(a)$. Some linear interpolation will be required both in deriving mortality levels and in estimating the probability of survival. For 1969-1979 period, the additive synthetic model, 10 years apart, will be applied. The last section of the chapter will examine the obtained migration rates not only to determine the nature of internal migration in Nairobi but also to establish whether the observed movements are permanent in nature or are primarily for the purpose of obtaining employment. The birth-place statistics provided in the appendix will be used to assess the direction of migration stream-flows into the city.

3.1: LIFE TABLE CONSTRUCTION FOR NAIROBI.

As pointed above, our technique for estimating net migration rates requires $p(a)$ values derived from appropriate life table. This section seeks to show explicitly how such values are derived using the Trussell model for estimating child mortality. Table 3.1 shows the female population (FPOP), children ever born (CEB) and children dead (CD) for the age groups 15-19, 20-24...45-49. The table also contains the values of mean parities $p(i)$ obtained by:

$$P(i) = \text{CEB}(i) / \text{FPOP}(i)$$

and proportion dead $D(i)$ obtained by:

$$D(i) = \text{CD}(i) / \text{CEB}(i).$$

Where $i = 1, 2, \dots, 7$ denoting age groups of mothers 15-49.

The $P(i)$ and $D(i)$ values for 1979 are calculated from the raw data while those for 1969 are obtained from the analytical report volume IV of 1969 population census.

Next, the probability of dying at age "a", $q(a)$ is calculated by:

$$q(a) = K(i) * D(i) \quad (3.1)$$

Where "a" stands for the age group of children who are 1, 2, 3, 5, 10, 15 and 20 years. And i stands for women's age groups 1, 2, 3, 4, 5, 6 and 7. The multiplier $K(i)$ required to adjusted the reported proportion dead $D(i)$ for the effect of the age pattern of child bearing is obtained by:

$$K(i) = a(i) + b(i) P(1)/P(2) + c(i) P(2)/P(3) \quad (3.2)$$

Where $a(i)$, $b(i)$ and $c(i)$ are Trussell's coefficients North

TABLE 3.1: DERIVATION OF MEAN PARITIES AND PROPORTIONS DEAD

AGE GROUP	FPOP 1979	CEB 1979	CD 1979	P(i)=CEB/FPOP		D(i)=CD/CEB	
				1969	1979	1969	1979
15-19	47388	13564	1339	0.32	0.2862	0.0784	0.0987
20-24	52923	70129	6537	1.51	1.3251	0.0957	0.0932
25-29	38786	107248	9870	3.05	2.7651	0.1116	0.092
30-34	22580	89906	9045	4	3.9817	0.1269	0.1006
35-39	13742	60703	7678	4.64	4.4173	0.1459	0.1265
40-44	8913	28061	6594	4.83	3.1483	0.164	0.235
45-49	5656	29081	4688	4.64	5.1416	0.1749	0.1612

TABLE 3.2: COEFFICIENTS FOR ESTIMATION OF CHILD MORTALITY MULTIPLIERS

AGE GROUP	INDEX (i)	a(i)	b(i)	c(i)
15-19	1	1.1119	-2.9287	0.8507
20-24	2	1.239	-0.6865	-0.2745
25-29	3	1.1884	0.0421	-0.5156
30-34	4	1.2046	0.3037	-0.5656
35-39	5	1.2586	0.4236	-0.5898
40-44	6	1.224	0.4222	-0.5456
45-49	7	1.1772	0.3486	-0.4624

Source: United Nations (1983), Manual X, pp.77.

TABLE 3.3a: DETERMINING THE PROBABILITY OF DYING AT AGE "a" FOR 1969.

AGE GROUP	INDEX i	K(i)	D(i)	AGE a	q(a)
15-19	1	0.912414	0.0784	1	0.071533
20-24	2	0.957616	0.0957	2	0.091643
25-29	3	0.942057	0.1116	3	0.105133
30-34	4	0.988941	0.1269	5	0.125496
35-39	5	1.056370	0.1459	10	0.154124
40-44	6	1.043356	0.164	15	0.171110
45-49	7	1.022149	0.1749	20	0.178773

model for child mortality estimates given in table 3.2.

The values of $q(a)$ are given in table 3.3a and 3.4a for 1969 and 1979 respectively. In these tables there are the corresponding values of $K(i)$ and $D(i)$.

Given the $q(a)$ values, the mortality levels are obtained using the Coale-Demeny life table for the North model. Tables 3.3b and 3.4b show steps that lead us to obtain the mortality levels for 1969 and 1979 respectively. In these tables, column 1 represents the ages of children born by women in each age group. The second column $l(a)$ - the probability of surviving from birth to exact age "a" - is a complement of $q(a)$ and is obtained by:

$$l(a) = 1 - q(a) \quad (3.3)$$

To obtain the corresponding mortality levels some linear interpolation has been used. The basic idea behind the linear interpolation is as follows. Consider 3 points in a line namely $[X(1), Y(1)]$, $[X, Y]$ and $[X(2), Y(2)]$ in ascending order. Using the notion of a gradient of a line:

$$\frac{Y(2) - Y(1)}{X(2) - X(1)} = \frac{Y - Y(1)}{X - X(1)} \quad (3.4)$$

Which implies,

$$[Y(2) - Y(1)] [X - X(1)] = [Y - Y(1)] [X(2) - X(1)]$$

Which further implies,

$$[Y(2) - Y(1)] X - [Y(2) - Y(1)] X(1) = [Y - Y(1)] [X(2) - X(1)]$$

Therefore,

$$[Y(2) - Y(1)] X = [Y(2) - Y(1)] X(1) + [Y - Y(1)] [X(2) - X(1)]$$

i.e.,

$$X = X(1) + \frac{[Y - Y(1)] [X(2) - X(1)]}{[Y(2) - Y(1)]}$$

Since $X(2)$ and $X(1)$ are two consecutive integers then

$$X(2) - X(1) = 1$$

Therefore,

$$X = X(1) + \frac{Y - Y(1)}{Y(2) - Y(1)} \quad (3.5)$$

Making Y the subject, then from formula (3.4) above we have

$$Y - Y(1) = \frac{[X - X(1)] [Y(2) - Y(1)]}{X(2) - X(1)}$$

This implies,

$$Y = Y(1) + \frac{[X - X(1)] [Y(2) - Y(1)]}{X(2) - X(1)}$$

$$Y = Y(1) + [X - X(1)] [Y(2) - Y(1)] \quad (3.6)$$

$$\text{Since } X(2) - X(1) = 1$$

Thus, to obtain the mortality level representing the calculated $l(a)$ value, the linear interpolation formula (3.5) is used and interpreted as follows:

$$\text{The interpolated level} = \text{lower value} + [l(a) - \text{lower value}] / [\text{upper value} - \text{lower value}]$$

The upper and lower values refer to the values of $l(a)$ obtained from the North Model of the Coale-Demeny life table. Tables 3.3b and 3.4b show all the values for 1969 and 1979 censuses respectively. From these tables the mortality levels for Nairobi have been taken to be the average of the interpolated mortality levels for ages 2,3, and 5 only. The levels for other ages are often unreliable due to age mis-reporting. For 1969 the average mortality level is found to be about 16.57 and for 1979 it is about 17.49.

Since the study is dealing with the intercensal estimates, it is not proper to use the 1969 and 1979 data separately unless stable population is assumed. In Kenya, as in most developing countries, mortality has been declining in recent years due to the improvement in medical technology. Hence stable population theory cannot be applied directly unless such changes are adjusted for. In this study an attempt is made to adjust for the mean parities $P(i)$ and the proportion dead $D(i)$ for 1969 and 1979 by using what is known as additive synthetic model or hypothetical cohort approach. This approach requires two sets of data to have been taken either 5 or 10 years apart. The procedure is as follows:

Let $P(i,1)$ and $P(i,2)$ be the mean parity of the i^{th} age group of the ~~past~~^{first} census (1969) and the second census (1979) respectively. Next let $P(i,3)$ be the corresponding mean parity of the i^{th} age group for the synthetic case.

Diagrammatically we have:

Index i	1st Census	2nd Census	Synthetic Cohort
1	$P(1,1)$	$P(1,2)$	$P(1,3)$
2	$P(2,1)$	$P(2,2)$	$P(2,3)$
3	$P(3,1)$	$P(3,2)$	$P(3,3)$
4	$P(4,1)$	$P(4,2)$	$P(4,3)$
5	$P(5,1)$	$P(5,2)$	$P(5,3)$
6	$P(6,1)$	$P(6,2)$	$P(6,3)$
7	$P(7,1)$	$P(7,2)$	$P(7,3)$

The synthetic cohort parity values are obtained as follows:

$$P(1,3) = P(1,2)$$

$$P(2,3) = P(2,2)$$

$$P(3,3) = P(3,2) - P(1,1) + P(1,3)$$

$$P(4,3) = P(4,2) - P(2,1) + P(2,3)$$

$$P(5,3) = P(5,2) - P(3,1) + P(3,3)$$

$$P(6,3) = P(6,2) - P(4,1) + P(4,3)$$

$$P(7,3) = P(7,2) - P(5,1) + P(5,3)$$

Similarly the synthetic cohort values for the average children dead per woman - $ACD(i)$ - are derived using the same procedure.

The proportion dead $D(i)$ can then be derived as follows:

$$D(i) = CD(i) / CEB(i)$$

TABLE 3.3b: DETERMINING THE MORTALITY LEVEL FOR 1969.

AGE a	l (a)	Inter- polated Level	lower Level	upper value	lower value
1	0.928466	17.08496	17	0.93737	0.92764
2	0.908356	16.76296	16	0.91162	0.89785
3	0.894866	16.60992	16	0.90101	0.88526
5	0.874503	16.34838	16	0.88633	0.86818
10	0.845875	15.92657	15	0.84751	0.82525
15	0.828889	15.70360	15	0.83592	0.8122
20	0.821226	15.98144	15	0.82169	0.79668

The average mortality level =16.57376

TABLE 3.4a: DETERMINING THE PROBABILITY OF DYING AT AGE "a" FOR 1979

AGE GROUP	INDEX i	K(i)	D(i)	AGE a	q(a)
15-19	1	0.887023	0.0987	1	0.087549
20-24	2	0.95918	0.0932	2	0.089395
25-29	3	0.950405	0.092	3	0.087437
30-34	4	0.999145	0.1006	5	0.100513
35-39	5	1.067444	0.1265	10	0.135031
40-44	6	1.053724	0.235	15	0.247625
45-49	7	1.030899	0.1612	20	0.166180

TABLE 3.4b: DETERMINING THE MORTALITY LEVEL FOR 1979.

AGE a	l (a)	Inter- polated Level	lower Level	upper value	lower value
1	0.912450	0.519584	15	0.9175	0.90699
2	0.910604	0.926247	16	0.91162	0.89785
3	0.912562	0.778486	17	0.91585	0.90101
5	0.899486	0.764440	17	0.90354	0.88633
10	0.864968	0.824673	16	0.86868	0.84751
15	0.752374	0.674081	12	0.76138	0.73375
20	0.833819	0.506433	16	0.84564	0.82169

The average mortality level =17.48972

TABLE 3.5a: DETERMINING THE PROBABILITY OF DYING AT AGE "a" FOR THE SYNTHETIC APPROACH, 10-YEARS APART

AGE GROUP	i	P(i)	K(i)	D(i)	a	q(a)
15-19	1	0.2862	0.892068	0.0987	1	0.088047
20-24	2	1.3251	0.957552	0.0932	2	0.089243
25-29	3	0.2862	0.947347	0.1907	3	0.106387
30-34	4	1.3251	0.995791	0.1938	5	0.097687
35-39	5	0.2862	1.063947	0.3172	10	0.135334
40-44	6	1.3251	1.050488	0.4288	15	0.216610
45-49	7	0.2862	1.028156	0.4784	20	0.146512

TABLE 3.5b: DETERMINING THE MORTALITY LEVEL BETWEEN 1969 & 1979

AGE a	l(a)	Inter-polated Level	Lower Level	Upper Value	Lower Value
1	0.911952	15.47219	15	0.9175	0.90699
2	0.910756	16.93726	16	0.91162	0.89785
3	0.893612	16.53033	16	0.90101	0.88526
5	0.902312	16.92485	17	0.91987	0.90354
10	0.864665	16.81038	16	0.86868	0.84751
15	0.783389	13.84716	13	0.78736	0.76138
20	0.853487	17.34254	17	0.86855	0.84564

The average mortality level =16.79748

TABLE 3.6: ESTIMATING THE PROBABILITY OF SURVIVAL P(a) FOR 1969 AND 1979

Age	Level 16	Level 17	Level 18	Level 16.57376 (1969)	Level 17.48972 (1979)	Level 16.79748 (1969-1979)
5	0.86818	0.88633	0.90354	0.878593	0.894758	0.882654
10	0.84751	0.86868	0.88879	0.859656	0.878528	0.864392
15	0.83592	0.85853	0.88008	0.848892	0.869083	0.853951
20	0.82169	0.84564	0.86855	0.835431	0.856859	0.840789
25	0.80298	0.82851	0.85307	0.817628	0.840537	0.823339
30	0.78306	0.81027	0.83656	0.798672	0.823144	0.804759
35	0.76166	0.79063	0.81877	0.778281	0.804410	0.784762
40	0.738	0.76884	0.79897	0.755694	0.783595	0.762594
45	0.71053	0.74319	0.77531	0.729269	0.758919	0.736575
50	0.67915	0.71346	0.74747	0.698835	0.730115	0.706511
55	0.63915	0.67473	0.71031	0.659564	0.692154	0.667524
60	0.58955	0.62635	0.66353	0.610664	0.644557	0.618897
65	0.52279	0.56009	0.59829	0.544191	0.578797	0.552536
70	0.43442	0.47082	0.50874	0.455304	0.489390	0.463448
75	0.32398	0.35709	0.39234	0.342977	0.374352	0.350384

$$\begin{aligned}
 &= \frac{CD(i)}{FPOP(i)} * \frac{FPOP(i)}{CEB(i)} \\
 D(i) &= \frac{ACD(i)}{P(i)} \quad (3.7)
 \end{aligned}$$

Table 3.5a shows the synthetic values of $P(i)$ and $D(i)$ but not $ACD(i)$. The values of $q(a)$ and the corresponding mortality levels are obtained in the same way as has been done for 1969 and 1979 respectively. The average mortality level in the case of synthetic approach is 16.797 as shown in table 3.5b.

In this study we are going to use the values of $P(a)$ - the probability survival at age "a". The derivation of other life table functions are therefore not required. From the average mortality level 16.5736 (1969); 17.48972 and 16.79748 (1969-1979), it is clear that mortality levels for Nairobi lie between levels 16, 17 and 18. From the Coale-Demeny life tables, North model, the values of $P(a)$ are extracted and are shown in table 3.6. Using linear interpolation formula (3.6), the interpolated $P(a)$ values are calculated as follows:

$$\begin{aligned}
 \text{Interpolated } P(a) &= \text{lower } P(a) + [\text{calculated level} - \text{lower level}] \\
 &\quad * [\text{upper } P(a) - \text{lower } P(a)]
 \end{aligned}$$

The results are shown in table 3.6. It should be noted that the values of $P(a)$ are for combined sexes, since the number of children dead were combined.

3.2: THE ESTIMATION OF NET MIGRATION RATES.

To calculate the net migration rate, formula (2.5b) given in chapter 2 is applied:

$$e^{r/5} = \frac{-1}{5} \ln \left[\frac{N(a+5)}{N(a)} * \frac{P(a)}{P(a+5)} \right] - \frac{r}{5}$$

In this formula the following parameters are required:

$p(a)$ - the probability of survival upto age "a". This value has been derived in section 3.1 above.

$\frac{r}{5}$ - the age specific growth rate which is obtained by the formula:

$$\frac{r}{5} = \frac{1}{10} \ln \frac{N_{5a}(1979)}{N_{5a}(1969)}$$

$N(a)$ - the estimated number of persons at age "a".

Using the arithmetic mean,

$$N(a) = \frac{\frac{N}{5}_{a+5} + \frac{N}{5}_{a-5}}{10}$$

Where,

$$\frac{N}{5}_a = \frac{\frac{N}{5}_a(1969) + \frac{N}{5}_a(1979)}{2}$$

Using the geometric mean,

$$N(a) = \frac{1}{5} * \frac{N}{5}_a * \frac{N}{5}_{a-5}$$

All the values are shown in table 3.7 for combined sexes, 3.8 for female population and 3.9 for male population.

From section 3.1 we have obtained the $p(a)$ value for combined sexes. For female population this $p(a)$ is divided by 1.05 while for males is multiplied by 1.05, since the sex ratio is assumed to be 105 males for every 100 females.

In these tables the obtained migration rates are presented in column 4 and column 6.

It should be noted that in our obtained results, net in-migration at any specific age group is denoted by a negative sign (-). This is because in formula 2.5b, net out-migration rate at a given age group is denoted by a positive sign.

TABLE 3.7 THE INTERCENSAL NET MIGRATION ESTIMATION FOR
COMBINED SEXES.

AGE GROUP	CPOP 5Na 1969	CPOP 5Na 1979	ASGR 5ra	ARITH MEAN 5Na	GOEM MEAN 5Na
(1)	(2)	(3)	(4)	(5)	(6)
0-4	77268	122962	0.046459	100115	97473.21
5-9	58441	89606	0.042740	74023.5	72364.79
10-14	40771	68511	0.051902	54641	52851.31
15-19	49843	87496	0.056271	68669.5	66038.34
20-24	72772	133007	0.060307	102889.5	98382.85
25-29	59126	107922	0.060173	83524	79881.13
30-34	43935	73368	0.051277	58651.5	56775.19
35-39	35359	44851	0.023779	40105	39823.19
40-44	23434	33700	0.036330	28567	28102.06
45-49	18100	24127	0.028741	21113.5	20897.33
50-54	11487	16174	0.034218	13830.5	13630.50
55-59	7218	9797	0.030549	8507.5	8409.206
60-64	5074	5618	0.010184	5346	5339.075
65-69	2929	3925	0.029270	3427	3390.623
70-74	1682	2280	0.030419	1981	1958.305
75+	1907	2689	0.034363	2298	2264.491

TABLE 3.7 cont.

AGE GROUP	p(a)	ARITH N(a)	ARITH e 5 a	GEOM N(a)	GEOM e 5 a
(1)	(2)	(3)	(4)	(5)	(6)
5-9	0.882654	17413.85	0.013606	16797.17	0.014287
10-14	0.864392	12866.45	-0.04583	12368.62	-0.04518
15-19	0.853951	12331.05	-0.12542	11815.60	-0.12151
20-24	0.840789	17155.9	-0.08110	16120.84	-0.08353
25-29	0.823339	18641.35	-0.01055	17730.12	-0.00976
30-34	0.804759	14217.55	0.016570	13468.87	0.013298
35-39	0.784762	9875.65	0.043152	9509.930	0.040815
40-44	0.762594	6867.2	0.021471	6690.631	0.021208
45-49	0.736575	4968.05	0.033296	4846.682	0.035276
50-54	0.706511	3494.4	0.043834	3375.448	0.045372
55-59	0.66724	2233.8	0.049958	2141.230	0.048133
60-64	0.618897	1385.35	0.058503	1340.110	0.057962
65-69	0.552536	877.3	0.032324	850.9475	0.035861
70-74	0.463448	540.8	-0.03952	515.3591	-0.04598
75+	0.350384	427.9		421.1682	

TABLE 3.8 THE INTERCENSAL NET MIGRATION ESTIMATION FOR FEMALES

AGE GROUP	FPOP 5Na 1969	FPOP 5Na 1979	ASGR 5ra	ARITH MEAN 5Na	GOEM MEAN 5Na
(1)	(2)	(3)	(4)	(5)	(6)
0-4	38161	61499	0.047720	49830	48444.43
5-9	29275	46055	0.045310	37665	36718.66
10-14	21077	37341	0.057190	29209	28054.16
15-19	25095	47388	0.063570	36241.5	34484.80
20-24	28525	52923	0.061805	40724	38853.93
25-29	20971	38786	0.061491	29878.5	28519.83
30-34	13068	22580	0.054689	17824	17177.76
35-39	9439	13742	0.037560	11590.5	11389.06
40-44	6176	8913	0.036684	7544.5	7419.345
45-49	4600	5656	0.020666	5128	5100.745
50-54	3265	4236	0.026035	3750.5	3718.943
55-59	3131	2746	-0.01312	2938.5	2932.187
60-64	1733	1997	0.014179	1865	1860.322
65-69	1033	1427	0.032310	1230	1214.121
70-74	693	1060	0.042499	876.5	857.0764
75+	885	1363	0.043185	1124	1098.296

TABLE 3.8 cont.

AGE GROUP	p(a)/1.05	ARITH N(a)	ARITH e 5 a	GEOM N(a)	GEOM e 5 a	p(a)
(1)	(2)	(3)	(4)	(5)	(6)	
5-9	0.840622	8749.5	0.004262	8435.199	0.005136	0.882654
10-14	0.823230	6687.4	-0.05531	6419.069	-0.05334	0.864392
15-19	0.813286	6545.05	-0.09908	6220.747	-0.09924	0.853951
20-24	0.800751	7696.55	-0.04874	7320.848	-0.04700	0.840789
25-29	0.784132	7060.25	0.012359	6657.651	0.015562	0.823339
30-34	0.766437	4770.25	0.036976	4426.768	0.032072	0.804759
35-39	0.747392	2941.45	0.042702	2797.417	0.040660	0.784762
40-44	0.72628	1913.5	0.038790	1838.470	0.036699	0.762594
45-49	0.7015	1267.25	0.042159	1230.352	0.040064	0.736575
50-54	0.672867	887.85	0.019159	871.0770	0.017890	0.706511
55-59	0.635466	668.9	0.064302	660.4435	0.067347	0.66724
60-64	0.589425	480.35	0.051048	467.1109	0.051309	0.618897
65-69	0.526224	309.5	0.009476	300.5766	0.010022	0.552536
70-74	0.441379	210.65	-0.08810	204.0191	-0.08840	0.463448
75+	0.333699	200.05		194.0437		0.350384

TABLE 3.9 THE INTERCENSAL NET MIGRATION ESTIMATION FOR MALES

AGE GROUP	MPOP 5Na 1969	MPOP 5Na 1979	ASGR 5ra	ARITH MEAN 5Na	GOEM MEAN 5Na
(1)	(2)	(3)	(4)	(5)	(6)
0-4	39107	61463	0.045213	50285	49026.86
5-9	29166	43551	0.040092	36358.5	35639.98
10-14	19694	31170	0.045914	25432	24776.23
15-19	24748	40108	0.048283	32428	31505.44
20-24	44247	80084	0.059328	62165.5	59527.10
25-29	38155	69136	0.059441	53645.5	51360.33
30-34	30867	50788	0.049797	40827.5	39593.85
35-39	25290	31109	0.020708	28199.5	28049.00
40-44	17258	24787	0.036204	21022.5	20682.69
45-49	13500	18471	0.031351	15985.5	15791.08
50-54	8222	11938	0.037291	10080	9907.281
55-59	5087	7051	0.032648	6069	5989.026
60-64	3341	3621	0.008048	3481	3478.183
65-69	1896	2498	0.027574	2197	2176.283
70-74	989	1220	0.020991	1104.5	1098.444
75+	1022	1326	0.026040	1174	1164.118

TABLE 3.9 cont.

AGE GROUP	p(a)*1.05	ARITH N(a)	ARITH e 5 a	GEOM N(a)	GEOM e 5 a	p(a)
(1)	(2)	(3)	(4)	(5)	(6)	
5-9	0.926786	8664.35	0.023336	8360.183	0.023974	0.882654
10-14	0.907611	6179.05	-0.03520	5943.146	-0.03601	0.864392
15-19	0.896648	5786	-0.14970	5587.794	-0.13904	0.853951
20-24	0.882828	9459.35	-0.10399	8661.241	-0.11239	0.840789
25-29	0.864505	11581.1	-0.02327	11058.62	-0.02323	0.823339
30-34	0.844996	9447.3	0.007933	9018.987	0.005661	0.804759
35-39	0.824000	6902.7	0.041191	6665.037	0.038497	0.784762
40-44	0.800723	4922.2	0.013894	4817.173	0.014303	0.762594
45-49	0.773403	3700.8	0.030418	3614.428	0.033917	0.736575
50-54	0.741836	2606.55	0.047021	2501.573	0.048222	0.706511
55-59	0.700602	1614.9	0.057373	1540.583	0.056985	0.66724
60-64	0.649841	955	0.073256	912.8183	0.070498	0.618897
65-69	0.580162	567.8	0.045705	550.2549	0.052522	0.552536
70-74	0.486620	330.15	-0.00275	309.2265	-0.01435	0.463448
75+	0.367903	227.85		226.1609		0.350384

3.3: DISCUSSION OF THE RESULTS.

In this chapter, the main objective is to explain in details how to arrive at the intercensal age specific net migration rates, taking Nairobi as a case study. Both the arithmetic and geometric means have been used in the derivation of these rates. The general trend seems to be that the rates obtained using the geometric means are a little higher than those obtained using the arithmetic mean. In this section, the implication of the obtained rates is discussed.

The obtained rates for Nairobi reflect a migration pattern typical of most urban centres in developing countries. The city is characterised by net loss of children aged between 5 and 9 years; net in-flow of young adults aged between 10 and 24 years for females and 10 to 29 years for their male counterparts; and extensive out-migration of population in all the remaining age groups except 70-74 age group.

Extensive out-migration of children aged between 5 and 9 years - apparently accompanied by their mothers in the 25-29 age bracket - is largely attributable to the acute shortage of standard one places in the city. According to 1985 special report, the City Education Office (CEO) estimated that Nairobi had 40,572 children all vying for the 20,000 standard one places in the city's 156 primary schools (Nairobi City Council CEO's report, 10th October, 1985).

The city's standard one crisis is a persistent problem, compounded by out-of-town parents seeking standard one places in the city schools. These parents are mainly from the neighbouring districts of Kajiado and Kiambu.

The in-flow of young adults aged between 10 and 29 years and the apparent predominance of males in such migration flows are consistent with job-seeking hypothesis. The attraction of Nairobi for young job-seekers is mainly due to the fact that the city forms a major super-macro economic region, dominating the national formal, informal and tertiary manufacturing industrial sectors. Moreover, Nairobi is noted for the high concentration of standard and human infrastructures such as rail-road network, post and telecommunication, radio and television network, air transport, education facilities, medical facilities, electricity network and water supply facilities.

The in-flow of young people aged between 10 and 19 years constitute a population of primary school leavers joining the city's numerous secondary private schools as well as those being absorbed in the ever-expanding urban informal sector. The in-flow of secondary school leavers seeking for jobs is noticeable in the 19-29 age groups. These age brackets also contain the population of young adults joining numerous training institutions in the city.

Extensive out-migration experienced in the city after age 29 may be explained in terms of:

(i) People who have failed to secure jobs in the city and ^{are} either going back to their respective home districts or leaving the city to try their luck elsewhere in the country.

(ii) Those who have accumulated enough money and are moving out to invest it elsewhere in the country.

(iii) People who have completed their education and/or training and those in job transfers.

(iv) Migrants who have accumulated enough money to buy land in other rural districts as well as those who have attained retirement ages and going out to settle in their respective districts of birth.

It is therefore apparent that both the rural-urban and the reverse urban-rural types of migration are experienced in Nairobi. The birthplace statistics indicate that the majority of Nairobi's in-migrants originate from Central province, with Eastern, Nyanza and Western provinces playing significant role as migrants sources. (see figure 3.1)

The appendix - based on birthplace statistics - points out that, in order of importance, most migrants found in Nairobi come from Kakamega, Machakos, Siaya, Muranga and Kiambu districts. From the foregoing, it becomes evident that population movement into Nairobi is not primarily for permanent settlement purposes but for employment.

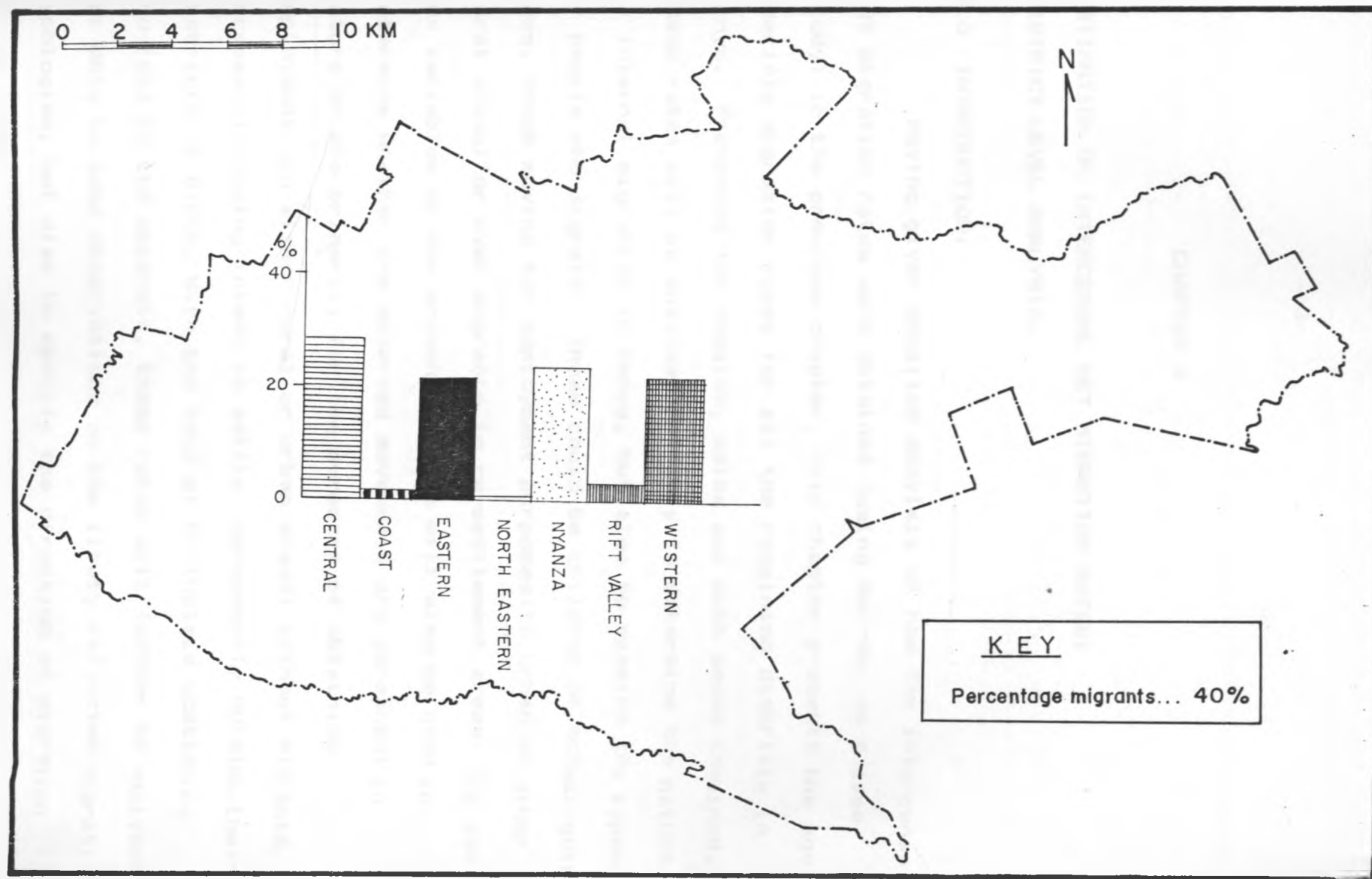


FIG. 3.1

POPULATION NET GAIN IN NAIROBI, 1979 CENSUS

CHAPTER 4

ESTIMATION OF INTERCENSAL NET MIGRATION RATES: DISTRICT LEVEL ANALYSIS.

4.0 INTRODUCTION:

Having given detailed analysis of how the intercensal net migration rates were obtained (using Nairobi as a case study) in the previous chapter, this chapter presents the age specific migration rates for all the remaining districts in Kenya. Presented for females, males and both sexes combined, these rates will be analysed not only to determine the nature of internal migration in Kenya, but also to examine the types of people who migrate. These could be children of school-going ages, those moving for employment purposes (to urban or other rural areas) or even migrants to re-settlement areas. The age-sex variables of the presented rates will also be used to determine whether the observed movements are permanent in nature or are primarily for the purposes of obtaining employment (in either rural or urban areas) without migrants necessarily having intent to settle permanently outside their districts of birth. With the help of birthplace statistics provided in the appendix, these rates will further be analysed not only to make observations on the likely reflected migration typologies, but also to specify the direction of migration stream flows.

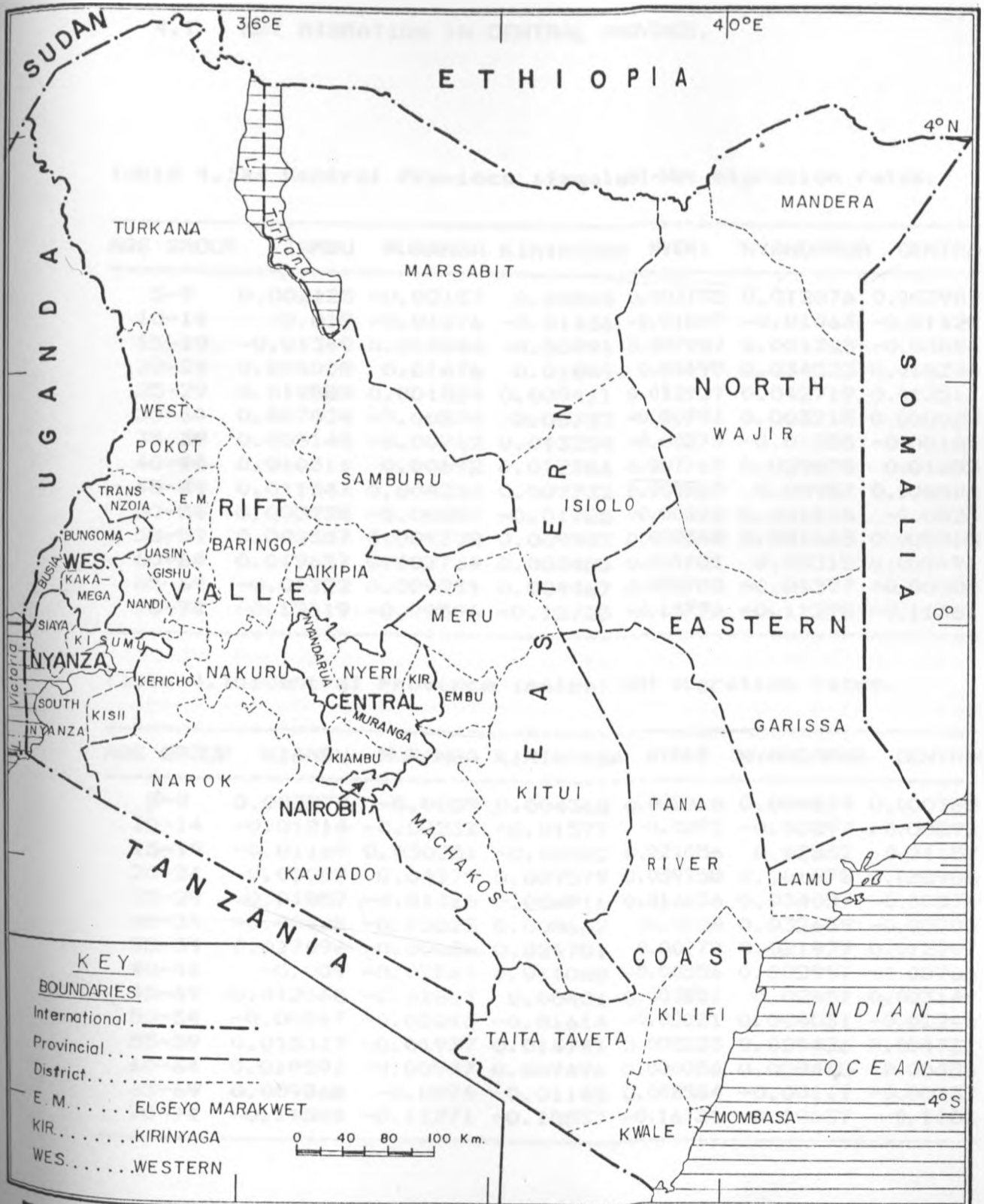


FIG. 4.0

ADMINISTRATIVE DIVISIONS OF KENYA

4.1 NET MIGRATION IN CENTRAL PROVINCE.

Table 4.1a: Central Province (females)-Net migration rates.

AGE GROUP	KIAMBU	MURANGA	KIRINYAGA	NYERI	NYANDARUA	CENTRAL
5-9	0.002125	-0.02157	0.00828	0.003735	0.012076	0.002982
10-14	-0.018	-0.01276	-0.01436	-0.01509	-0.01063	-0.01428
15-19	-0.01349	0.010043	-0.00991	0.007257	0.001723	-0.00094
20-24	0.004008	0.01676	0.01889	0.03495	0.034523	0.018294
25-29	0.012589	0.001824	0.009411	0.012927	0.042719	0.012517
30-34	0.007034	-0.00574	0.00733	-0.00791	0.003215	0.000023
35-39	0.003145	-0.00762	0.013254	-0.00279	-0.01255	-0.00164
40-44	0.010311	0.00692	0.012354	0.007767	0.029878	0.01083
45-49	0.011547	0.004232	0.007732	0.009869	0.00957	0.008024
50-54	0.003238	-0.00007	-0.01785	-0.00022	0.001826	-0.0024
55-59	0.008557	0.009308	0.009983	0.008568	0.021665	0.009065
60-64	0.019637	0.002734	0.003485	0.009101	0.03315	0.009191
65-69	-0.01222	0.009231	0.004467	0.053702	-0.01377	-0.00504
70-74	-0.12619	-0.09506	-0.12723	-0.15776	-0.11298	-0.11561

Table 4.1b: Central Province (males)-Net migration rates.

AGE GROUP	KIAMBU	MURANGA	KIRINYAGA	NYERI	NYANDARUA	CENTRAL
5-9	0.002872	-0.0059	0.004368	0.002818	0.004879	0.000968
10-14	-0.01214	-0.00232	-0.01577	-0.0093	-0.00897	-0.00892
15-19	-0.01169	0.030251	-0.00022	0.021056	0.02852	0.01157
20-24	-0.01087	0.04979	0.027579	0.059358	0.061978	0.028986
25-29	-0.01057	-0.01316	0.004916	0.010636	0.034057	-0.00074
30-34	-0.00428	-0.03023	0.008662	-0.0128	0.032639	-0.00705
35-39	0.017096	-0.00686	0.024751	0.00277	0.021977	0.012297
40-44	-0.009	-0.02567	0.011068	-0.00556	0.002997	-0.00706
45-49	0.012068	-0.01867	0.00401	0.003851	0.02451	0.003144
50-54	-0.00267	-0.02243	-0.01614	-0.02021	0.004031	-0.01248
55-59	0.015317	-0.01937	0.014741	0.005223	0.024426	0.004731
60-64	0.019592	-0.00947	0.007496	0.000056	0.009418	0.00453
65-69	0.009868	-0.0076	-0.01145	0.048584	-0.00111	-0.00337
70-74	-0.11504	-0.11271	-0.10537	-0.16731	-0.10637	-0.1103

Table 4.1c: Central Province (combined)-Net migration rates.

AGE GROUP	KIAMBU	MURANGA	KIRINYAGA	NYERI	NYANDARUA	CENTRAL
5-9	0.002499	-0.00453	0.006329	0.003274	0.008435	0.001969
10-14	-0.01505	-0.00674	-0.01507	-0.01216	-0.00975	-0.01156
15-19	-0.0126	0.019508	-0.00498	0.014105	0.01535	0.005278
20-24	-0.0035	0.031047	0.023181	0.046416	0.047596	0.023442
25-29	0.000893	-0.0044	0.007383	0.012079	0.038917	0.006526
30-34	0.001116	-0.01636	0.007945	-0.0101	0.017066	-0.00332
35-39	0.010095	-0.00757	0.018457	-0.00037	0.002714	0.004631
40-44	0.000794	-0.00688	0.011688	0.002108	0.016901	0.002807
45-49	0.011777	-0.00616	0.006108	0.007338	0.017249	0.005761
50-54	0.000457	-0.01104	-0.01712	-0.00867	0.002921	-0.0069
55-59	0.011802	-0.00522	0.012455	0.007131	0.023094	0.007149
60-64	0.019663	-0.00695	0.005281	0.004972	0.02142	0.006761
65-69	-0.00139	-0.00494	-0.00335	0.051426	-0.00691	-0.0042
70-74	-0.12052	-0.11386	-0.1169	-0.16238	-0.10893	-0.11289

(a) KIAMBU:

Except for the in-flow of female population experienced in the age groups 10-19 and 65 plus, Kiambu exhibits net loss of female population in all the remaining age brackets. The in-flow of girls of secondary school ages (14-19 years), is largely attributable to the high concentration of girls secondary schools in the district. Children in the age group 5-9 are probably moving out with their mothers in the age bracket 25-29. The extensive out-flow of children and women from the district may indicate that such movements are for permanent settlement elsewhere in the country. Birth-place data indicate that such out-flow streams are mainly directed towards Nakuru and Kajiado districts.

Besides this observed evidence of rural-rural migration, table 4.1 b further reflects the influence of Thika industrial town and Nairobi city in the age distribution of male population in the district. The spill-over of the city's population into Kiambu and the growth of Thika municipality are clearly evidenced by the net gain of male population in the 10-34 age groups. This is accounted for by the extension of Nairobi's tentacles into Kiambu areas such as Ruiru, Banana hills, Limuru, Wangige, Kikuyu and Waithaka. The out-migration of male population in the 55-69 age groups may be attributable both to late retirement of people born outside the district and to the out-flow of Kiambu residents for permanent settle-

ment elsewhere in the country. The age distribution of combined population does not differ significantly from that of the male population. Thus, net in-flow of young adults of school going ages (10-19 years) and new labour entrants (20-24 years) are clearly reflected in the tabulated rates.

(b) MURANGA:

Unlike the case of Kiambu, female population movement into Muranga is characterised by the in-flow of children of primary school ages (5-14 years) accompanied by their mothers in the 30-39 age groups. This may imply that such children are being sent back home (from major urban centres) for child care, education and to assist in day-to-day home duties.

Like most typical rural districts, migration pattern in Muranga reflects the rural-urban labour drift of young educated people aged between 15 and 24 years. The birth-place statistics serve to point out that such drifts are mainly directed towards Nairobi. The return migration of males into Muranga after age 25 however indicates that the reflected rural-urban population drift is either for temporary employment or for the purpose of education and training. The migration rates of combined sexes show that the migration pattern in Muranga district is strongly influenced by male population movements. The influx of people into the district after age 25 is explanatory in the light of recent settlement of the marginal parts of lower Muranga (Makuyu area) by people from the adjacent districts.

(c) NYERI:

Nyeri, as in the case of Kiambu, is marked by net loss of children aged 5-9 years, accompanied by their mothers in the the 25-29 age group. There is however a net gain in female children aged 10 to 14 years accompanied by their mothers in the 30-39 groups. The net loss of children and female population at older ages (40-49 and 55-69 age groups) indicates that such observed out-migration are for permanent settlement elsewhere in the country. The net out-migration of young adults aged between 15 and 29 years may however point out the significant role of rural-urban migration in moulding the reflected migration pattern in Nyeri.

The role of return migration of urban-rural type can be noticed in the net gain of female and male population in the 50-54 age bracket (early retirement). Birthplace statistics indicate that most migrants from Nyeri go to Nairobi, Nyandarua, Laikipia, Nakuru and Kirinyaga (in that order of importance). Thus, population movement from Nyeri is for the purpose of land colonization in areas formerly reserved for white settlement as well as for the purpose of seeking employment in major urban centres.

(d) KIRINYAGA:

Though Kirinyaga has been known to be an in-migration area, closely associated with post-independence re-settlement programmes, the age specific net migration rates for Kirinyaga

tend to suggest that large flows of migrants into the district has subsided in recent times. The migration pattern in the area has stabilised by the passage of time to acquire characteristics observable in other rural districts. Like Nyeri, the migration data for Kirinyaga show out-migration of children aged 5 to 9 years accompanied by their parents in the age group 25-29. The out-migration of young adults aged between 20 and 24 years shows the significant role of rural-urban migration. However, since such out-flow extends upto age 49 for both sexes, the role of rural-rural migration for permanent settlement outside the district can hardly be overlooked. Indeed the birthplace statistics show that migrants from Kirinyaga are received in Nairobi, Mombasa, Nakuru, Lamu and Laikipia, thus confirming the significant role of these two types of migration in the district. The net gain of young adults aged between 10 and 19 years may be due to the in-flow of children sent back home for primary and secondary education. The net gain of young adults may also be due to the rise and growth of Kerugoya, Kutus and Sagana townships between 1969 and 1979.

(e) NYANDARUA:

The migration pattern in Nyandarua is not remarkably different from that observed in Kirinyaga. Like Kirinyaga, Nyandarua was formerly noted as one of the major recipient districts for migrants from Nyeri, Kambu and Muranga.

The data at hand, however, tends to point out that such a trend has changed over time. Net gain of combined population is apparently limited to age groups 10-14 and 65-74.

Being one of the major pyrethrum producing districts in the country, Nyandarua enjoys the labour of children aged between 10 and 14 years. This may perhaps serve to explain reasons for the net gain of population in those particular age brackets. Otherwise there is considerable out-migration of young and old adults, pointing out the possibility of movements for permanent settlement elsewhere in the country. The return migration after age 65 may however point out that some of the observed young adults out-migrants go to urban areas. From the birth-place statistics, it can be seen that Nyandarua sends migrants mainly to Laikipia, Nakuru, Nairobi, Narok and Lamu.

SUMMARY

From the foregoing, a few generalisations can be made about migration patterns in Central province.

First, it is apparent that the impact of Nairobi is more felt in Kiambu district than in any other district of the province. This is evidenced both by the influx of young adults into the district and by out-migration of old adults from the area.

Out-migration of children, apparently accompanied by their parents, is a significant feature of migration pattern in

the province. This makes it clear that a remarkable portion of the out-migrants from the province are likely to settle permanently outside their respective districts of birth. The birthplace statistics give Rift valley province as a major destination area for migrants born in Central province.

The two former in-migration districts (Kirinyaga and Nyandarua) are apparently affected both by rural-urban and rural-rural types of migration. Thus, like in any other rural districts where those two types of migration are significant, the two districts exhibit net loss of children and their parents in the middle and older ages. Net loss of young adults, indicative of rural-urban migration is equally significant in Central province.

Early retirement at age 50-54 is observable in all districts of Central Province except Nyandarua. Thus, the remaining four districts exhibit a net gain in population (both sexes combined) in that particular age group.

4.2 NET MIGRATION IN COAST PROVINCE

Table 4.2 a: Coast province (females)-Net migration rates.

AGE GROUP	MOMBASA	KILIFI	KWALE	LAMU	TAITA	TANA.R.	COAST
5-9	0.011162	0.013858	0.011081	-0.02686	-0.0094	-0.02441	0.003913
10-14	-0.03207	0.006324	0.008153	-0.03402	0.001034	-0.01759	-0.00604
15-19	-0.06747	-0.03758	-0.02759	-0.07172	0.018905	-0.05681	-0.0393
20-24	-0.03626	-0.04214	-0.3709	-0.05481	0.01075	-0.04747	-0.03625
25-29	0.020474	0.013676	0.01098	-0.03046	0.010047	-0.02594	0.009947
30-34	0.038035	0.007672	0.00705	-0.00997	0.008852	-0.00997	0.011723
35-39	0.032886	0.031402	0.028338	-0.02228	0.013068	-0.00339	0.023779
40-44	0.018576	0.010221	0.001715	-0.00187	-0.00661	-0.03095	0.003363
45-49	0.00727	-0.01118	0.01546	-0.03655	0.003364	-0.02859	-0.00342
50-54	0.012022	0.022749	0.018832	-0.01176	-0.00346	-0.02497	0.009922
55-59	0.002812	0.02444	0.013953	-0.0308	-0.0123	0.008503	0.007357
60-64	0.019452	0.011748	-0.00048	-0.05928	0.011379	-0.02744	0.000666
65-69	0.027126	0.029307	0.015567	0.002659	0.097618	-0.01724	0.013692
70-74	-0.06246	-0.07487	-0.00826	-0.13166	-0.12656	-0.14343	-0.08763

Table 4.2 b: Coast province (males)-Net migration rates.

AGE GROUP	MOMBASA	KILIFI	KWALE	LAMU	TAITA	TANA.R.	COAST
5-9	0.011548	0.002988	0.005701	-0.03456	-0.01053	-0.0305	-0.00161
10-14	-0.02583	0.021535	0.018712	-0.02748	0.00623	-0.01366	0.003103
15-19	-0.06211	0.015176	0.007597	-0.06896	0.035153	-0.03955	-0.01407
20-24	-0.05279	-0.01046	-0.02041	-0.07386	0.018414	-0.05472	-0.03096
25-29	-0.0046	-0.01809	-0.01112	-0.06204	-0.00156	-0.03984	-0.013
30-34	0.020609	-0.01032	-0.00087	-0.04034	0.01561	-0.02862	0.003282
35-39	0.04315	0.018134	0.015992	-0.03246	0.017949	-0.02267	0.022301
40-44	0.012365	-0.00506	-0.01366	-0.02767	-0.0007	-0.03818	-0.00461
45-49	0.02189	-0.02042	-0.00486	-0.05059	0.000334	-0.03039	-0.00459
50-54	0.033902	0.003198	0.000196	-0.02737	0.00617	-0.0251	0.006573
55-59	0.042808	0.008034	0.007045	-0.03981	-0.00648	-0.01308	0.008534
60-64	0.046742	-0.0069	-0.00248	-0.03487	0.003889	-0.02855	-0.00104
65-69	0.036744	0.017251	0.010516	-0.02644	0.075754	-0.03983	0.005074
70-74	-0.01883	-0.07824	-0.01454	-0.11687	-0.14072	-0.10016	-0.08154

Table 4.2 c: Coast province (combined)-Net migration rates.

AGE GROUP	MOMBASA	KILIFI	KWALE	LAMU	TAITA	TANA.R.	COAST
5-9	0.011338	0.008334	0.008346	-0.03075	-0.00986	-0.02755	0.001111
10-14	-0.02869	0.014051	0.013545	-0.03061	0.003582	-0.0155	-0.00132
15-19	-0.06471	-0.01319	-0.01079	-0.07014	0.026682	-0.04808	-0.02687
20-24	-0.0456	-0.02925	-0.02975	-0.06391	0.014274	-0.05051	-0.03376
25-29	0.005398	0.000875	0.001135	-0.0463	0.00458	-0.03229	-0.00131
30-34	0.02708	0.000307	0.003031	-0.02526	0.012187	-0.01877	0.007454
35-39	0.03975	0.025584	0.021657	-0.02772	0.015418	-0.01292	0.023041
40-44	0.014501	0.003231	-0.00554	-0.01465	-0.00369	-0.03466	-0.00087
45-49	0.016941	-0.01569	0.004797	-0.04448	0.001847	-0.02959	-0.00403
50-54	0.026025	0.012908	0.008783	-0.01907	0.001279	-0.02528	0.00813
55-59	0.027376	0.015889	0.010132	-0.03566	-0.00938	-0.00313	0.008044
60-64	0.035281	0.001622	-0.00158	-0.04705	0.007597	-0.02822	-0.00029
65-69	0.03267	0.02265	0.012738	-0.01261	0.086301	-0.03046	0.008939
70-74	-0.03734	-0.07569	-0.01186	-0.12412	-0.13406	-0.01189	-0.08421

(a) MOMBASA:

From tables 4.2a, 4.2b and 4.2c, it becomes clear that the migration pattern in Mombasa is consistent with the job-seeking hypothesis. Thus, there is a net gain in the population of young adults aged between 15 and 24 years. These include both job-seekers and those moving into Mombasa Municipality for education and training purposes. Return out-migration after age 25, however, indicates that the in-flow of population into the town is not for the purpose of permanent settlement.

Like Nairobi, Mombasa is characterised by out-migration of children aged 5 to 9 years accompanied by their mothers aged 25 to 29 years. This is mainly due to the shortage of standard one places in the town as well as to the desire of parents to send their children back home to help in day-to-day duties in their respective home districts.

Massive out-migration between age 25 and 69 years is likely to constitute the following groups of people:

- (i) Those who have failed to secure jobs in the town and are moving out to try their luck elsewhere.
- (ii) Those who have accumulated enough money and are moving out to invest it elsewhere in the country.
- (iii) People in job transfers.

- (iv) People who have attained retirement age and are going out to settle down in their respective districts of birth.

Thus, it is evident that Mombasa is experiencing three major types of migration, namely, rural-urban, reverse urban-rural and urban-urban migration patterns.

From within Coast province, most migrants to Mombasa originate from Kilifi, Taita-Taveta and Kwale districts while from outside the province, Kitui, Siaya and Machakos are the major contributors of migrants to Mombasa (see the appendix). Mombasa can therefore be identified as an area of in-migration involving both external and internal sources. Moreover, Mombasa is used as a stepping stone by migrants from inland districts. They first go to Mombasa before they undertake movements into the adjacent districts - Kwale and Kilifi. The attraction of Mombasa cannot be explained merely in terms of its unique role in the province but also as a major premier port of the East African Coast.

(b) KILIFI:

As in the case of Kiambu and Nairobi, the migration pattern in Kilifi appears to be strongly influenced by its proximity to Mombasa. Children of primary school ages (5-14 age groups) tend to out-migrate from Kilifi to Mombasa, the former being one of the major contributors of migrants to the

municipality. The observed children movement from Kilifi may be explained by two major factors:

(i) Kilifi has one of the highest infant mortality rates in the country. Kichamu (1986) estimates the infant mortality rate for the district to be 195/1000. Thus, it is possible to explain the out-migration of children from Kilifi to Mombasa in terms of better medical facilities in the municipality.

(ii) There is acute shortage of adequate education infrastructure in Kilifi as compared to Mombasa.

The net gain of females in the 15 to 24 age brackets and males aged 20 to 29 years may be explained both by spill-over of Mombasa population into Kilifi as well as by the attraction of the flourishing tourist industry in the North Coast. The Kilifi cashew nut factory, expansion of Malindi township and the Wakala pineapple establishment offer yet other forms of attraction for young job-seekers.

Male migrants to Kilifi tend to ^{be} older than those at Mombasa. This may confirm the above observation that migrants from outside the province go to Mombasa before they undertake movements to other districts of the province. This is particularly so with those who have failed to get employment in the municipality. They move to other areas such as Mtwapa sisal plantation in Kilifi district and Ramisi sugar

plantation in Kwale. Population gained between age 40 and 49 years reflects the influence of Magarini settlement scheme in the district.

(c) KWALE:

The migration pattern in Kwale is similar to that observed in Kilifi, reflecting the influence of Mombasa in these two particular districts. Like Kilifi, Kwale is characterised by out-migration of children aged between 5 and 14 years and by in-migration of young adults in the age brackets 15-24 for females and 20-34 years for males. The in-flow of females aged between 15 and 24 years can be explained by the presence of educational institutions such as Matuga girls secondary school, Waa secondary and Kwale secondary schools. The out-migration of children aged between 5 and 9 years may be explained by high mortality rates in the district-estimated to be 176/1000 (Kichamu, 1986). The movement of young ladies into the district may also be explained in terms of either marriage contracts or by the flourishing tourist industry at the South Coast. Ukunda is at heart of tourist hotels and is likely to attract young school leavers.

The movement of young male adults into the district may be explained by the presence of agro-industrial establish-

ments at Ramisi (Associated Sugar Company). Other sources of employment likely to attract school leavers into the region include Msambweni Development Company, A.R. Khan's and Kurji Patel's Companies. The fact that male adults found in Kwale are older than those at Mombasa tends to point out that such people move to Mombasa before they migrate to Kwale. The growth of divisional headquarters namely Msambweni, Kinango, Matuga and Kubo, some of which have attained urban status, may also explain the movement of people into the district.

The net loss of children accompanied by their parents tends ^{to} indicate that some movements into the district are not for permanent settlement but for temporary wage employment. The movements into the district of much older adults, aged between 40 and 49 years, may however confirm that some form of migration for permanent settlement has taken place in the district, especially at Ukunda and Shimba Hills settlement schemes. Such migrants are mainly from Machakos district.

(d) TAITA-TAVETA:

Unlike the three districts of Coast province discussed above, Taita-Taveta has a net gain of children aged 5 to 9 years, an indication that the district receives some of the children out-migrating from Mombasa. These are likely to be children sent back home for primary education and child care.

It also becomes evident that out-migration from Taita-Taveta is more pronounced among females than among their male counterparts. It may therefore appear as if female population in Taita-taveta marry outside the district. The combined population exhibits net out-migration between ages 10 and 39 and between ages 45 to 54 years. Thus, movement from Taita-taveta seems to be both for temporary wage employment and permanent settlement elsewhere in the country.

Out-migration from the district is engendered by land pressure in the densely populated areas of Wundanyi and such movements are directed towards Mombasa, Nairobi, Kilifi, Nakuru and Kwale districts. The common retirement age for males and females is 55-59 years, though some women tend to retire at age 50 to 54 years.

(e) LAMU AND TANA RIVER:

This region forms what is geographically termed as the "Tana River Basin and its Lowlands". The migration patterns in these two districts is typical of re-settlement areas in Kenya. Both the Bura and Hola irrigation schemes on Tana river and the Lake Kenyatta settlement scheme in Lamu form the major destination areas for migrants from different parts of the country. While Tana river draws migrants from districts in North Eastern Province - Garissa, Mandera and Wajir - Lamu gets its migrants mainly from Central Province and other settlement areas such as Kajiado, Uasin Gishu, Trans Nzoia, Kirinyaga and Nakuru.

SUMMARY

Population movement within the Coast is consistent with the hypothesis of young adults seeking employment. Thus, all districts of the Coast province except Taita-Taveta exhibit net gain in population aged between 15 and 24 years. Mombasa district appears to play a dominant role in population movement within the province. Mombasa and its neighbouring districts (Kwale and Kilifi) experience net loss of children aged 5-9 years. Most likely these children are sent back to the home districts for education and parental care. Within the Coast, Taita-taveta which is one of the major contributors of migrants appears to register net gain in children population.

Children from Kwale and Kilifi appear to be undertaking their primary education outside their districts of birth. This is evidenced by net loss of children aged between 5 and 14 years from the two districts. This net loss may be attributable to the shortage of schools in the two districts, though the high infant mortality rates experienced in the regions can also be another possible explanation for such net loss of children from the two districts.

There is an apparent correlation between net migration of children in the age bracket 5-9 and female population in the age group 25-29. For instance, net out-migration of children in the 5-9 age bracket corresponds to out-migration of females

in the age group 25-29 (Kilifi, Mombasa and Kwale). Lamu and Tana river on the other hand experience net in-migration in those two age groups.

The three districts-Mombasa, Kwale and Kilifi tend to experience net loss of population who have attained retirement ages (50-59 age groups). One can therefore conclude that there is return migration from Coast to the original home districts of Coastal migrants. Within Coast province return movements are directed towards Taita-taveta while far inland, such movements are directed towards Nyanza and Western provinces.

4.3 NET MIGRATION IN NYANZA PROVINCE

Table 4.3 a: Nyanza province (females)-Net migration rates.

AGE GROUP	SIAYA	KISUMU	S.NYANZA	KISII	NYANZA
5-9	-0.01814	-0.20723	-0.00025	0.006905	0.002698
10-14	-0.0017	-0.04693	0.00034	0.008998	0.004305
15-19	0.005492	-0.00117	-0.00605	-0.00172	-0.00193
20-24	0.002156	-0.00383	-0.00014	0.01504	0.00423
25-29	-0.00051	0.024954	0.015073	0.035666	0.020151
30-34	-0.00178	0.021419	0.012813	0.027052	0.01535
35-39	0.013846	0.0242	0.022607	0.032632	0.023516
40-44	-0.02451	-0.00497	-0.01118	0.005635	-0.00908
45-49	-0.02262	-0.00761	-0.00855	0.005003	-0.00873
50-54	0.013976	0.012409	0.022828	0.026182	0.018933
55-59	0.002791	0.00533	-0.00606	0.002638	-0.00006
60-64	0.010197	0.007465	0.020906	0.007522	0.010665
65-69	0.019628	0.012686	0.00338	0.033949	0.014107
70-74	-0.0457	-0.05219	-0.07132	-0.07384	-0.068

Table 4.3 b: Nyanza province (males)-Net migration rates.

AGE GROUP	SIAYA	KISUMU	S.NYANZA	KISII	NYANZA
5-9	-0.0216	0.003869	-0.00454	0.00857	0.001036
10-14	0.004101	0.011673	0.004938	0.0166	0.010751
15-19	0.054437	0.02063	0.0262	0.028262	0.02987
20-24	0.087875	0.024039	0.045385	0.044433	0.046581
25-29	0.008519	0.015245	0.024376	0.036827	0.024581
30-34	-0.01305	0.008002	0.00965	0.025682	0.010976
35-39	0.011835	0.040217	0.03345	0.04034	0.03378
40-44	-0.02913	-0.00123	-0.00705	0.000588	-0.00657
45-49	-0.03063	0.006327	-0.00816	0.013792	-0.00466
50-54	-0.02564	0.012342	-0.00016	0.016074	0.00039
55-59	-0.014	0.010916	-0.00664	0.005113	-0.00241
60-64	-0.00962	0.002343	0.003128	0.004133	-0.00057
65-69	-0.02426	-0.02128	-0.02549	0.017158	-0.01661
70-74	-0.07816	-0.06345	-0.08344	-0.05695	-0.07801

Table 4.3 c: Nyanza province (combined)-Net migration rates.

AGE GROUP	SIAYA	KISUMU	S.NYANZA	KISII	NYANZA
5-9	-0.01989	0.004872	-0.00244	0.007736	0.001851
10-14	0.001254	0.007562	0.002727	0.012869	0.007611
15-19	0.028959	0.008963	0.009944	0.013111	0.013787
20-24	0.036785	-0.00219	0.020549	0.029021	0.023693
25-29	0.002966	0.047277	0.019047	0.036245	0.022122
30-34	-0.0056	0.031786	0.011494	0.026422	0.013431
35-39	0.013146	0.032049	0.027154	0.036789	0.027877
40-44	-0.02603	-0.00161	-0.00923	0.001535	-0.0079
45-49	-0.02879	-0.00389	-0.00845	0.00852	-0.0069
50-54	-0.00878	0.0106	0.011694	0.021167	0.01015
55-59	-0.00093	0.008386	-0.00616	0.004007	-0.00105
60-64	0.000717	0.004671	0.010899	0.005727	0.004649
65-69	-0.00302	-0.00662	-0.01386	0.024982	-0.00312
70-74	-0.06441	-0.05848	-0.07825	-0.06511	-0.07347

(a) SIAYA:

Siaya reflects migration pattern typical of most rural districts. A portion of children aged 5 -to-9 years lost from major urban centers such as Nairobi and Mombasa seems to be received in Siaya, given that Siaya is one of the major sending areas of migrants found in those urban centers. The net gain of children in this particular age group may indicate that parents of Siaya origin found in these two towns send their children back home mainly due to the shortage of standard one places in major urban centres.

Net loss of young adults between ages 10 and 29 from the district may be accounted for both by inadequate lower and upper secondary education institutions in the district as well as by the preference of young school leavers for urban-based wage employment. Though rural-urban migration tends to be more pronounced among young adults, there is adequate evidence to support the fact that rural-rural migration for permanent settlement elsewhere outside the district is strongly taking root. Out-migration of female population at older ages tends to give weight to this observation. Birthplace statistics indicate that rural-rural migration from Siaya is mainly directed towards South Nyanza (Lambwe Valley settlement area).

Return migration of unsuccessful job-seekers and adults who have attained retirement age is reflected in net gain of male population after age 40. The age structure of both sexes combined indicates that the Siaya migration pattern is strongly influenced by the migration behaviour of males.

(b) KISUMU:

Kisumu presents a unique migration pattern in Nyanza province and this may be attributed to the influence of Kisumu municipality which is the largest and the most important urban centre west of the Rift valley. Unlike other districts in the province, Kisumu registers net gain in female population between ages 5 and 24. This may be explained in terms of children sent home from other major urban centres for education and child care. Inadequate education institutions to cater for girls in the neighbouring districts - Siaya, Kisii, Kakamega and South Nyanza - may also account for the influx of female population into the district. The role of Kisumu town as a major commercial centre in Western Kenya should not, however, be ignored.

While the net gain of male population aged between 20 and 24 years may be explained by job-seeking hypothesis, it becomes a puzzling discovery that Kisumu is apparently experiencing a net loss of male population in the age groups 5-19 and 25-39. The male children aged between 5 and 14 years

are possibly sent back from the town to their home districts (especially to Siaya which is major contributor of migrants found in Kisumu district), to undertake their primary education and to help in day-to-day duties. Net out-migration of males between age 25 and 39 can be explained in terms of step-wise migration. Thus, males tend to gravitate into Kisumu municipality before undertaking long distance movements to other urban centres such as Nairobi, Mombasa, Nakuru and Eldoret. In-migrants aged between 40 and 49 years may constitute a population of those who have given up looking for jobs in other major urban centres and those who move into the municipality to establish businesses. Out-migration between ages 50 and 64 years constitute a population of municipality workers who have attained retirement ages and are going back to settle down in their districts of birth (most likely Siaya and Kakamega from where most migrants into the town originate).

Net loss of female population between ages 50 and 69 and male population between ages 45 and 64 may also tend to point out that rural-to-rural migration for permanent settlement elsewhere is increasingly becoming a significant feature of Kisumu district. Birthplace statistics indicate that rural-rural migration streams from Kisumu district are mainly directed towards South Nyanza, Nandi and Uasin Gishu districts. Return migration is also evident in the district after age 65. These migrants are mainly from Mombasa and Nairobi where most migrants from Kisumu district end up.

(c) SOUTH NYANZA:

The migration pattern in South Nyanza is not significantly different from those observed in Siaya and Kisumu districts. The pattern is characterised by in-migration of children aged 5 to 9 years, out-migration of males between ages 10 and 39 years and by in-migration of male adults between ages 40 and 59 years. The explanation of net loss of young adults aged between 15 and 24 years is offered by the job-seeking hypothesis. Net gain of male adults (40-59 age groups) is explained by population flow from Kisumu and Siaya districts into Lambwe valley. As in Siaya and Kisumu, the evidence of late retirement is explicit at age 65 plus. Return migration following retirement is likely to be from Nairobi, Kericho and Mombasa where most migrants from South Nyanza tend to gravitate.

(d) KISII:

Except for female in-migration at age 15-19, Kisii experiences net loss of population in most of the remaining age groups. The in-flow of female population in the observed age groups, may be explained by the existence of private secondary schools in the district. The influence of Kisii township is yet another possible explanation for the observed net gain in the population of young females. The net out-flow

of population in the remaining age groups is most likely directed towards major urban centres. However, since such out-flows affect all ages, it can be deduced that such movements involve family migration for permanent settlement in places where land may be available. Population out-flow from the district may be explained in the light of acute land shortage in the district. The birthplace statistics indicate that massive population out-flows from the district are mainly directed towards Kericho, Nairobi, Nakuru, Narok and Trans Nzoia.

SUMMARY

The migration figures in tables 4.3a, 4.3b and 4.3c show that all the districts in the province except Kisii, gain female children aged between 5 and 9 years, an indication that rural-urban migrants from those districts never sever connections with their respective districts of birth. Such children are sent back home to help in day-to-day duties while their parents remain in towns. This perhaps explains Oduho and Mukras' finding (1983) that urban dwellers from Siaya district regularly send remittances back home.

All districts in the province are affected by net out-flow of potential young male adults aged between 10 and 29 years. These include people of school going age as well as those moving out to search for wage employment elsewhere in the country. It also becomes evident that Nyanza is playing a dominant role in rural-urban migration.

Return migration affecting male population after age 40 is more pronounced in Siaya and South Nyanza than in other districts of the province. This seems to indicate that rural-rural migration for permanent settlement is experienced more in Kisii and Kisumu districts than in those remaining two districts. Net gain of aged male population by South Nyanza (40-59 age groups) points out that the district receives rural-rural migrants from Kisumu and Siaya districts. This is confirmed by birthplace statistics.

4.4 NET MIGRATION IN WESTERN PROVINCE

Table 4.4 a: Western province (females)-Net migration rates.

AGE GROUP	KAKAMEGA	BUNGOMA	BUSIA	WESTERN
5-9	-0.00479	-0.00356	-0.00322	-0.01567
10-14	0.005669	-0.001	-0.01434	-0.00278
15-19	0.013886	-0.00792	-0.03943	0.000536
20-24	0.009654	0.003632	-0.02258	0.004165
25-29	0.01587	0.011279	0.000542	0.012603
30-34	0.007424	0.008952	-0.00003	0.007157
35-39	0.009955	0.013989	0.003042	0.010843
40-44	-0.00388	-0.00454	-0.03108	-0.00761
45-49	-0.0206	-0.01109	-0.03531	-0.01949
50-54	0.013366	0.006939	0.001196	0.013265
55-59	-0.00696	-0.01864	-0.00423	-0.00393
60-64	0.00846	-0.01471	0.003353	0.011843
65-69	-0.0234	0.012839	0.014486	0.005507
70-74	-0.10698	-0.12086	-0.07455	-0.08134

Table 4.4 b: Western province (males)-Net migration rates.

AGE GROUP	KAKAMEGA	BUNGOMA	BUSIA	WESTERN
5-9	-0.00571	-0.0012	-0.008	-0.01627
10-14	0.013645	-0.00218	-0.00118	0.003482
15-19	0.04177	0.004751	0.007906	0.027026
20-24	0.049573	0.021529	0.018665	0.038007
25-29	0.009618	0.008249	-0.01441	0.006112
30-34	0.000762	0.006715	-0.02497	-0.00106
35-39	0.014737	0.009408	-0.00482	0.010797
40-44	-0.01205	-0.00761	-0.03324	-0.01316
45-49	-0.01008	-0.00813	-0.03617	-0.01265
50-54	-0.01893	-0.00885	-0.03343	-0.01573
55-59	-0.02353	-0.00907	-0.02793	-0.0158
60-64	0.018293	-0.01009	-0.00849	0.017117
65-69	-0.03991	0.001015	-0.01583	-0.0121
70-74	-0.1211	-0.12185	-0.07698	-0.08852

Table 4.4 c: Western province (combined)-Net migration rates.

AGE GROUP	KAKAMEGA	BUNGOMA	BUSIA	WESTERN
5-9	-0.00525	-0.00239	-0.00562	-0.01597
10-14	0.009689	-0.00159	-0.00769	0.000375
15-19	0.027399	-0.00162	-0.017	0.013424
20-24	0.027553	0.01225	-0.00514	0.019516
25-29	0.013515	0.010016	-0.00494	0.010083
30-34	0.094613	0.007916	-0.01002	0.003651
35-39	0.01181	0.011837	-0.0002	0.010783
40-44	-0.00702	-0.00588	-0.03194	-0.00992
45-49	-0.01641	-0.00966	-0.03569	-0.01643
50-54	-0.00102	-0.00044	-0.01483	0.000147
55-59	-0.01469	-0.01401	-0.01569	-0.00953
60-64	0.013139	-0.01262	-0.00278	0.042299
65-69	-0.03196	0.006977	-0.00216	-0.00363
70-74	-0.11477	-0.1213	-0.0759	-0.08529

(a) KAKAMEGA:

Like other typical rural districts, Kakamega is experiencing net gain in children population aged between 5 and 9 years. The high population pressure on arable land seems to be very critical in the district. This is evidenced by the net loss of population between age 10 and 39 years. The age distribution of migrants suggests that such out-flow of the district's population is in search of better employment opportunities outside this district with a population density of 294/SQ.KM. (Kenya,1985). Thus, there is a net loss of young adults between ages 15 and 24 years. However, since such movements also affect both children and adults between ages 25 and 39 years, rural-rural migration for permanent settlement outside the district cannot be ruled out. Indeed, the birthplace statistics show that rural-rural migration stream flows from the district are mainly directed towards Nandi, Nakuru, Uasin-Gishu and Trans Nzoia districts.

The significance of rural-urban migration in the district is marked both by out-migration of young adults and by return migration of males after age 40. Return migration of retirees type is also noticeable after age 65. It is evident from the appendix that Kakamega is the major contributor of migrants found in Nairobi. This perhaps explains why net loss of children from the city is paralleled by net gain of children in similar age group in the district.

(b) BUNGOMA:

The migration pattern in Bungoma is distinctive for net in-flow of children aged 5-9 years and teen-age population aged between 10 and 19 years. This constitute a population of children sent back home for education and to help in farm work. This may particularly be explained by the presence of rural agro-industrial establishments such as the Pan African Paper Mills at Webuye, the Nzoia Sugar Company and the nearby Mumias Sugar Company. Thus, the labour of children in these particular age groups is essential in small-scale farms (belonging to out-growers) providing sugar cane to the factories in the nucleus estates. The growth of Bungoma and Kimilili townships can also explain the in-flow of young adults into the district. The migration pattern in the district after age 25 is similar to that observed in Kakamega, indicating some form of rural-urban and rural-rural migration patterns. Bungoma is the main contributor of migrants to Tranz Nzoia district (see the appendix).

(c) BUSIA:

Except for the out-flow of male population between ages 15 and 24, Busia seems to be experiencing net in-flow of population. The combined population reflects net population gain affecting all ages. This net gain in population may be explained both by the district's location at the Kenya-Uganda border as well as by population pressure in the neighbouring

Kakamega and Siaya districts. It is possible that there is illegal immigration into the district from the neighbouring Uganda. This perhaps explains why Busia had the highest population growth rate in the province between 1969 and 1979- a period which coincided with an era of political turmoil in that neighbouring country.

SUMMARY

All districts in the province experience net gain in children population aged between 5 and 9 years. Such gain extends to age 14 for Busia and Bungoma districts. It is therefore possible that most children from the province undertake their primary education in their respective home districts. Kakamega seems to be playing a dominant role in moulding the emerging migration pattern in the province. Thus, combined population for the province portrays a migration pattern nearly identical to that observed in Kakamega district.

The age distribution of migrants from the province tend to portray the effects of both rural-rural and rural-urban types of migration. Male figure also tend to indicate the influence of return migration of early and late retirement types. This is depicted by net gain in combined population between ages 40 and 59 by the province.

4.5 NET MIGRATION IN NORTH EASTERN PROVINCE

Table 4.5 a: North Eastern province (females)-Net migration rates .

AGE GROUP	GARISSA	MANDERA	WAJIR	N.EASTERN
5-9	-0.05372	-0.00937	-0.04917	-0.0377
10-14	-0.03645	0.010509	-0.02243	-0.01563
15-19	-0.03448	0.01989	-0.02356	-0.01181
20-24	-0.03661	0.02465	-0.01128	-0.00666
25-29	-0.04184	0.010393	-0.01945	-0.01746
30-34	-0.00411	0.022983	-0.00491	0.004693
35-39	-0.02483	0.027592	-0.01179	-0.00265
40-44	-0.01873	0.014057	-0.01742	-0.00653
45-49	-0.02508	0.010824	-0.01027	-0.00646
50-54	-0.01317	0.004807	-0.01194	-0.00541
55-59	-0.01512	0.04504	0.041989	0.029757
60-64	-0.04835	-0.01575	-0.03786	-0.03163
65-69	0.004772	0.023406	0.018274	0.016868
70-74	-0.19545	-0.16748	-0.1837	-0.17866

Table 4.5 b: North Eastern province (males)-Net migration rates

AGE GROUP	GARISSA	MANDERA	WAJIR	N.EASTERN
5-9	-0.05810	-0.00708	-0.05033	-0.03854
10-14	-0.04594	0.018873	-0.01787	-0.01396
15-19	-0.04483	0.042808	-0.00569	-0.00106
20-24	-0.03257	0.06534	0.019586	0.018386
25-29	-0.02041	0.040692	0.015201	0.011117
30-34	-0.00062	0.041891	0.011085	0.018115
35-39	-0.04201	0.025032	-0.01489	-0.01526
40-44	-0.03939	0.001544	-0.02436	-0.01863
45-49	-0.04359	-0.05831	-0.02751	-0.01866
50-54	-0.02322	0.037059	-0.02202	-0.00693
55-59	-0.03827	-0.09936	0.000697	-0.00697
60-64	-0.04408	0.084873	-0.03871	-0.02257
65-69	-0.00957	-0.10433	0.022426	0.020329
70-74	-0.13841	0.020905	-0.1395	-0.12803

Table 4.5 c: North Eastern province (combined)-Net migration rates .

AGE GROUP	GARISSA	MANDERA	WAJIR	N.EASTERN
5-9	-0.05603	-0.00814	-0.0498	-0.03815
10-14	-0.04158	0.015132	-0.0199	-0.01467
15-19	-0.04025	0.032533	-0.0137	-0.00584
20-24	-0.03448	0.046836	0.00548	0.007114
25-29	-0.03029	0.025906	-0.00175	-0.00266
30-34	-0.00234	0.032311	0.002976	0.011322
35-39	-0.03361	0.019351	-0.01331	-0.00903
40-44	-0.02988	0.009711	-0.02105	-0.01291
45-49	-0.03567	0.010706	-0.01975	-0.01334
50-54	-0.0187	0.012821	-0.01699	-0.00608
55-59	-0.02854	0.028754	0.019548	0.009476
60-64	-0.04578	-0.00261	-0.03833	-0.0266
65-69	-0.00484	0.035047	0.020546	0.018582
70-74	-0.16461	-0.1407	-0.15976	-0.15182

(a) GARISSA:

When the limited out-migration of female population between ages 65 and 69 is ignored, Garissa is basically an in-migration area. Net gain in male and female populations of all ages is observable in the district. This shows that population movement into the district involves family members, a movement closely associated with the nomadic way of life. Ecologically induced nomadic migration forms essential characteristic of North Eastern Province in which the district is found.

Population movements into the district may also be explained by the growth of Garissa township from a humble beginning to attain a population of 14,076 in the 1969-79 intercensal period. In 1979, Garissa was among the first largest 25 urban centres in the country and certainly the largest in the province. Moreover, it is not only the provincial headquarters but also an important commercial centre in North-Eastern Kenya. Net migration by birthplace statistics show that most migrants into the district come from the neighbouring Wajir and Mandera districts.

(b) MANDERA:

Unlike Garissa, Mandera is affected by extensive out-migration which, seemingly, involve family movements. Net loss of male population from the districts extends from

age 10 to age 44, while for females, it is experienced upto age 59. Net gains in population are limited to age groups 5-9, 45-49, 55-59 and 65-69 for males and age brackets 5-9, 60-64 and 70-74 for females. Thus, net gains in population are only observable among people who are either too young or too old to undertake long distance movement associated with the nomadic way of life. Bordering Ethiopia and Somalia, the observed out-migration from the district may be explained by shifta bandits of Somalia origin who ravaged the bordering districts during the intercensal period, by the protracted Ogaden war between Ethiopia and Somalia which often spilt over into the frontier districts of Northern Kenya and by persistent drought and famine over the last few years. From the appendix, it becomes clear that population movements from the district are mainly directed towards Wajir, Marsabit, Garissa, Nairobi and Tana River district.

(c) WAJIR:

The district experiences net gain in female population aged between 5 and 54 years, supporting the observation that population movement from Mandera is mainly directed towards Wajir. Net gain in male population is experienced in the age brackets 5-9, 35-54, 60-64 and 70-74. Net loss of male population aged between 20 and 34 years may indicate that their movements are either directed towards Garissa or elsewhere

outside the country. The age structures of males and females combined reflect female dominance in population movements into the district. Thus, except for age groups 20-24 and 30-34, the combined sexes exhibit net gain in population between ages 5 and 54 ,a pattern portrayed among female migrants.

SUMMARY

Net migration patterns in North Eastern province appear to have been shaped by two major factors:

(a) The nomadic way of life reflected in the migration pattern involving family movement. Hence, whether a district is experiencing a net loss or net gain in its population, such movements often affect nearly all age groups.

(b) The impact of shifta bandits and protracted Ogaden war which occurred between the two bordering nations-Somalia and Ethiopia. This is clearly reflected by the net gain in children population (aged between 5 and 19 years) and female population, especially in Garissa.

These women and their children may constitute a population of refugees who escaped the ravages of Ogaden war and the resurgent shifta bandits to seek security in Garissa town.

The net out-migration of males aged 20 to 34 years from the province may indicate that such migrants left the area to fight in Somalia with which Northern Kenya maintain cultural and clan linkages. The affected age groups constitute a population of potential army recruits. Out-migration experienced in the northern frontier district (Mandera) and population net gain in both Wajir and Garissa-located further south-seem to reflect the southward movement of population from North Eastern province. This may be explained by either insecurity associated with shifta bandits or environmental hazards (encroaching aridity and semi-desert conditions) frequently experienced in the province.

When making these observations, it should however be borne in mind that the census from this nomadic region was obtained on the basis of 10 per cent sample count (1969 census). The figures obtained are therefore likely to reflect errors.

4.6 NET MIGRATION IN EASTERN PROVINCE

Table 4.6 a: Eastern province (females)-Net migration rates.

AGE GROUP	EMBU	ISIOLO	KITUI	MACHAKOS	MARSABIT	MERU	EASTERN
5-9	0.001181	-0.00234	-0.01517	-0.01241	-0.04069	0.005415	-0.00675
10-14	-0.01463	0.013306	-0.01048	-0.00161	-0.03187	-0.00223	-0.00524
15-19	-0.01102	-0.04136	-0.00198	0.001053	-0.05497	-0.01094	-0.00663
20-24	-0.00056	-0.02092	0.010703	-0.01353	-0.04058	0.001165	-0.00436
25-29	0.005166	0.010601	-0.00098	0.00645	-0.03657	0.013038	0.005672
30-34	0.012286	0.018064	-0.00007	0.012908	-0.02132	0.010146	0.008417
35-39	0.002246	-0.00053	0.009507	-0.00911	-0.01847	0.008491	0.000832
40-44	0.002796	-0.01596	0.025582	0.020815	-0.04114	0.00272	0.012227
45-49	-0.01231	0.003591	-0.01414	-0.00389	-0.03457	0.007065	-0.00413
50-54	-0.01564	-0.02831	-0.03447	-0.0525	-0.03383	0.004308	-0.02834
55-59	0.008276	0.000311	0.020835	0.041309	-0.03891	-0.00079	0.021479
60-64	-0.00493	0.016435	0.011752	0.000268	-0.05889	0.013543	0.0041
65-69	-0.01163	0.030777	-0.03053	-0.0294	-0.06325	0.007833	-0.0172
70-74	-0.11466	-0.13524	-0.13163	-0.09545	-0.17277	-0.09578	-0.11019

Table 4.6 b: Eastern province (males)-Net migration rates.

AGE GROUP	EMBU	ISIOLO	KITUI	MACHAKOS	MARSABIT	MERU	EASTERN
5-9	-0.00034	-0.00711	-0.01737	-0.01399	-0.04421	0.006255	-0.00785
10-14	-0.0087	0.010866	-0.00203	0.000737	-0.02498	0.0066	0.000431
15-19	0.005591	-0.01661	0.039646	0.018668	-0.02469	0.00595	0.014701
20-24	0.013664	-0.01809	0.073708	0.026573	-0.00859	0.0123	0.024824
25-29	-0.01888	0.003142	0.005917	-0.00055	-0.01141	-0.0029	-0.00275
30-34	0.009045	0.024213	0.001381	-0.00146	-0.01177	0.003064	0.001733
35-39	0.006844	0.016703	0.008124	0.000645	-0.03177	0.022387	0.008702
40-44	-0.016	-0.0082	0.012227	-0.00376	-0.0428	-0.02306	-0.00992
45-49	-0.01302	-0.0086	-0.01496	0.00667	-0.04729	0.016494	0.002061
50-54	-0.0125	0.007085	-0.02428	-0.04499	-0.01613	-0.0015	-0.02258
55-59	0.006882	-0.00197	0.006054	0.026467	-0.02844	-0.0245	0.003357
60-64	-0.00326	-0.01188	0.006889	-0.01012	-0.04339	0.019109	0.002465
65-69	-0.05256	0.030834	-0.03411	-0.0522	-0.05415	0.000235	-0.0324
70-74	-0.10625	-0.05705	-0.09455	-0.07012	-0.13737	-0.10548	-0.09174

Table 4.6 c: Eastern province (combined)-Net migration rates.

AGE GROUP	EMBU	ISIOLO	KITUI	MACHAKOS	MARSABIT	MERU	EASTERN
5-9	0.000417	-0.0048	-0.01628	-0.01321	-0.04252	0.005836	-0.00731
10-14	-0.01165	0.012012	-0.00619	-0.00041	-0.028	0.002221	-0.00235
15-19	-0.0029	-0.02878	0.017878	0.009818	-0.03853	-0.00265	0.003892
20-24	0.006136	-0.01941	0.03691	0.004998	-0.02386	0.006507	0.009158
25-29	-0.00547	0.006891	0.001664	0.003799	-0.02406	0.005623	0.002133
30-34	0.010812	0.02118	0.00479	0.00667	-0.0167	0.006748	0.005455
35-39	0.004896	0.008658	0.008999	-0.00499	-0.02516	0.015023	0.004298
40-44	-0.00703	-0.01208	0.020057	0.010198	-0.04208	-0.00924	0.002376
45-49	-0.01341	-0.00343	-0.0143	0.00077	-0.04155	0.012029	-0.00116
50-54	-0.01429	-0.01076	-0.0302	-0.04942	-0.02451	0.003056	-0.02586
55-59	0.007742	-0.00072	0.014248	0.034613	-0.03297	-0.00976	0.012926
60-64	-0.00428	0.002756	0.009242	-0.0049	-0.05074	0.014801	0.003212
65-69	-0.03133	0.030407	-0.03227	-0.04114	-0.05833	0.003795	-0.025
70-74	-0.1106	-0.09918	-0.11315	-0.08285	-0.15438	-0.10023	-0.10102

(a) EMBU:

Embu exhibits net loss of female population aged 5 to 9 years, apparently accompanied by their mothers aged 25 to 29 years. There is however a net gain of young female adults in the age groups 10 to 24 seemingly accompanied by their mothers aged between 45 and 54 years. This may indicate that some of the movements into the region are for permanent settlement- though net gain in female young adults aged 15 to 24 years may also be attributed to the influence of Embu municipality and to the presence of tea factories at Kianjokoma. The in-flow of women and children into the district may also be explained by the projects recently established in the region. These include Masinga Multi-purpose scheme, Kindaruma dam and Kamburu dam. The birth-place data show that Embu draws its migrants mainly from the neighbouring Machakos district. Female out-migrants aged between 25 and 44 years are most likely working in the rice scheme at the nearby Mwea-tabere project in the neighbouring Kirinyaga district.

Net gain in male population aged 5-14 years shows that most boys from the district undertake their primary education at home. Net migration of males in the subsequent age groups (15-24 age brackets) however, constitutes a population of migrants undertaking their secondary education outside the district as well as those moving out to search for employment

in major urban centres. Men aged 30 to 39 years are most likely moving out to establish business elsewhere outside the district.

The migration pattern portrayed by combined population suggests that children aged 5 to 9 years move out with their mothers aged 25 to 29 years and such movements are mainly directed towards Nairobi, Mombasa, Nakuru, Kirinyaga and Kiambu. Net gains experienced in middle and older ages (10-19, 25-29, 40-54 and 60-74), however, indicate that such movements are of a temporary nature. They are mainly for the purpose of securing employment in urban centres and other rural districts.

(b) ISIOLO:

The district experiences net gains in children population aged between 5 and 9 years and those of young adults aged 15 to 24 years. The age structure of combined sexes also portrays net gain in adult population between age groups 40 and 59 years, indicating movements into the district for permanent settlement. This may be accounted for by population pressure in the neighbouring Meru district and also by harsh environmental conditions in the bordering Marsabit and Samburu districts. The effect of rural-urban population drift is evidenced by net out-migration of males aged between 25 and 39 years. Birthplace statistics indicate that such movements are mainly directed towards Nairobi, Nakuru and Kiambu. This

may be due to the fact that Isiolo was among the disadvantaged districts during the colonial days. People from this district often tend to migrate to major urban centres and their neighbouring districts to search for employment. The fact that rural-urban migrants from Isiolo tend to be older than those encountered in the adjacent districts may also indicate that there are some form of step-wise migration experienced in the district. Thus, migrants from Marsabit and North eastern province gravitate into Isiolo before undertaking long distance movement to major urban centres further south. This is particularly so since Isiolo town is strategically located at a point where two major roads converge - A2, linking Somalia to Kenya through Moyale and Marsabit and B9, connecting Mandera to Eastern province through Wajir and Muddo-Gashe. Thus, for North Eastern Kenya, Isiolo forms a major gate-way to the capital city of Nairobi, located further south.

Out-migration affecting women aged 55 to 69 years and males in the age brackets 60-69 indicate that not all population movements into the district are for the purpose of permanent settlement. Some migrants return to their original districts of birth.

(c) KITUI:

This district experiences net gains in female population aged 5 to 19 and 25 to 34 years, indicating that most girls from the district undertake their primary and

and secondary education at home. Net gain in female population at risk of marriage may also suggest that women from the neighbouring districts move into the district to be married. Net loss of women in the 20 -to- 24 age bracket can easily be explained by job-seeking hypothesis while the out-migration of much older women aged between 30 and 44 years can largely be attributed to rural-rural migration for settlement purposes.

Like their female counterparts, male population is characterised by net in-flow of children aged 5 to 14 years and net loss of young and middle aged adults in the age groups 15 to 44, suggesting movement for wage employment outside the district. Net loss of older males aged between 55 and 64 years may, however, point out that some of the observed population movements from the district are for re-settlement purposes outside the district.

Combined population movement pattern is strongly influenced by the male migration behaviour. Net gains in children of primary school ages contrast sharply with net out-flow of young and middle aged adults. Return migration of retired persons is apparent in population net in-flows experienced within the age brackets 45-54 and 65-74. Such movements are mainly from Nairobi and Mombasa which receive a considerable number of migrants from Kitui district.

(d) MACHAKOS:

As in the case of Kitui, Machakos experiences net in-flow of children aged between 5 and 14 years, an indication

that most urbanites of Machakos origin tend to send their children back home for primary education and parental care. Net out-flow of population is significant between ages 15 and 34 years for the combined sexes. Although this pattern may suggest limited opportunities for secondary education in the district, it also reflects the significant weight of rural-urban population drift from Machakos district. This is shown clearly in return migration affecting male population after age 60. Indeed, the birthplace statistics indicate Machakos as the second largest contributor of migrants to Nairobi after Kakamega. The net gain in male population observed in the age brackets 25-29 and 30-34 is due to the influence of Machakos and Athi river townships.

The possibility of rural-rural migration for land colonisation is reflected in the net loss of female population in the age groups 25-34, 40-44 and 55-64; and male population in the age brackets 35-39, 45-49 and 55-59. Such migrants mainly go to Kwale settlement schemes (Ukunda, Diani and Shimba Hills) and to the nearby Masinga multi-purpose scheme.

(e) MARSABIT:

This is essentially a district of in-migration since both males and females exhibit net gain in population at all age groups. This may partly be explained by family movements closely associated with a nomadic way of life of the

inhabitants and partly by the district's location in the Kenya-Ethiopia border. Thus, there is a possibility of population movement across the national boundary from the neighbouring Ethiopia. Within the country, migrants in the district come from the nearby Wajir and Mandera districts. This is mainly due to the establishment of special boarding schools in this district to cater for nomadic tribes in the northern part of Kenya.

(f) MERU:

Meru reflects a pattern of migration characteristic of densely populated areas of the country. Except for the net in-flow of population for education (females aged 10-19 and males aged 15-19 years) and retirement purposes (age groups 55-59 and 70-74), net loss of population is experienced in most of the remaining age groups. While a net loss of young adults aged between 20 and 29 years may be explained by rural-urban population drift, the net out-flow of much older women aged 29-54 and 60-69 years suggests a net out-migration stream-flow for permanent settlement outside the district. This is particularly so because such movements involve net loss of children and women who provide essential labour required in developing the newly acquired land outside the district. Nairobi forms a major destination area for young job-seekers while the landless rural-rural migrants migrate from densely populated areas of Tharaka, Tigania, Chogoria and Nyambene foot hills to Laikipia, Nakuru, Nyeri, Kiambu and Isiolo.

Such movements are either for the purpose of land colonisation or for temporary employment in the cash sector outside the district.

SUMMARY:

Except for Meru and Embu, all the districts in the province experience net in-flow of children aged between 5 and 14 years, indicating that such children often undertake primary education in their respective home districts.

Marsabit district tends to reflect a migration pattern similar to that observed in some districts of North eastern province (pattern associated with the nomadic way of life). This may serve to suggest that there is intensive inter-district population movement between Marsabit and the North Eastern Province districts relative to those in Eastern Province where it is located.

Of all the migration patterns experienced in the province, rural-urban and rural-rural types seem to be predominant. This is evidenced by net loss of males aged between 10 and 24 years and females aged 25 to 44 years. The emerging patterns of population movements in this province are heavily weighted by Machakos and Kitui districts, though the contribution of Meru and Embu are also significant. The emerging migration patterns are suggestive of the fact that population movement to and from the province is mainly engendered by landlessness and preference of urban wage employment by the present generation of young adults.

4.7 NET MIGRATION IN RIFT VALLEY PROVINCE

Table 4.7 a: Rift Valley province (females)-Net migration rates.

AGE GROUP	BARINGO	KAJIADO	KERICHO	LAIKIPIA	NAKURU	NANDI	NAROK
5-9	0.000527	-0.01036	0.012473	-0.0245	-0.01813	-0.00195	-0.01019
10-14	0.007946	-0.02131	0.013995	-0.03628	-0.03432	-0.00533	0.002168
15-19	-0.00402	-0.05717	-0.00363	-0.05097	-0.04841	-0.01204	-0.04412
20-24	0.00246	-0.03764	0.01592	-0.039	-0.02823	0.003038	-0.04434
25-29	0.023488	0.006553	0.032258	-0.01755	0.001099	0.01537	-0.00123
30-34	0.026766	0.001061	0.021227	-0.02734	-0.00538	0.013416	-0.00167
35-39	0.020671	-0.0038	0.021082	-0.03675	-0.01452	0.006094	0.010161
40-44	0.007424	-0.00674	-0.00255	-0.01701	-0.00783	0.00687	0.004643
45-49	0.010268	0.001415	-0.00176	-0.02314	-0.01866	0.011499	-0.01335
50-54	0.021314	0.013648	0.003143	-0.04482	-0.02263	0.009058	0.013555
55-59	0.001299	-0.00158	-0.00189	-0.04692	-0.01753	-0.02251	-0.00471
60-64	0.004474	-0.01385	0.022866	-0.02413	-0.01288	0.004279	0.013846
65-69	0.005075	-0.01432	0.006879	-0.05502	-0.05082	-0.01028	0.013183
70-74	-0.10653	-0.11424	-0.10231	-0.14175	-0.13317	-0.11666	-0.03563
AGE GROUP	MARAKWET	SAMBURU	T.NZOIA	TURKANA	U.GISHU	W.POKOT	R.VALLEY
5-9	0.022139	0.013668	-0.03325	-0.00263	-0.00617	-0.02882	-0.00443
10-14	0.035147	0.023674	-0.04119	0.024176	-0.01544	-0.03661	-0.00461
15-19	0.03892	0.009501	-0.04859	0.032941	-0.03031	-0.05034	-0.01827
20-24	0.039752	-0.00469	-0.0437	0.026119	-0.01743	-0.05931	-0.00947
25-29	0.05665	0.033744	-0.01827	0.023104	0.020512	-0.0125	0.014768
30-34	0.049757	0.02749	-0.0224	0.046013	0.013006	-0.02386	0.01141
35-39	0.038188	0.040985	-0.01566	0.079058	-0.00111	-0.0157	0.011479
40-44	0.027706	0.021552	-0.03526	0.087512	0.003039	-0.02299	0.005117
45-49	0.026737	-0.00042	-0.04422	0.055468	-0.00008	-0.03452	-0.00098
50-54	0.035115	0.062591	-0.02861	0.092271	-0.0011	-0.02337	0.007519
55-59	-0.00031	0.003309	-0.05386	0.090083	-0.02539	-0.02776	-0.00881
60-64	0.016458	0.016325	-0.05533	0.051864	-0.007	-0.03632	0.002093
65-69	0.023833	0.008788	-0.03277	0.079972	-0.03763	-0.04316	-0.00866
70-74	-0.08288	-0.09606	-0.12304	0.061656	-0.13321	-0.15167	-0.10857

Table 4.7 b: Rift Valley province (males)-Net migration rates.

AGE GROUP	BARINGO	KAJIADO	KERICHO	LAIKIPIA	NAKURU	NANDI	NAROK
5-9	0.00086	-0.02635	0.014708	-0.03136	-0.01958	-0.00605	-0.02243
10-14	0.012944	-0.01614	0.015272	-0.04756	-0.02942	0.005682	-0.0018
15-19	0.018374	-0.01499	-0.00509	-0.04435	-0.03756	-0.00807	0.008167
20-24	0.012799	-0.02919	0.006675	-0.04667	-0.03961	-0.01684	-0.0316
25-29	0.004554	-0.01399	0.014908	-0.02626	-0.01522	0.007661	-0.0183
30-34	0.001887	-0.00778	0.022853	-0.02067	-0.00455	0.001952	-0.01319
35-39	0.028031	0.00061	0.050385	-0.01484	0.01528	0.0056	-0.02731
40-44	-0.00811	-0.01181	0.06294	-0.02286	-0.00867	-0.0005	-0.03379
45-49	0.007911	-0.00503	0.019407	-0.0026	0.00369	0.020027	0.003409
50-54	0.020409	0.014337	0.020504	-0.04007	-0.01236	-0.01438	-0.01605
55-59	0.014492	-0.00156	0.004393	-0.02716	-0.00154	0.007997	-0.032
60-64	0.006426	0.002905	0.028518	-0.02225	-0.005	0.029393	0.027751
65-69	0.002329	-0.00663	0.002708	-0.05884	-0.03464	-0.01528	0.011007
70-74	-0.0945	-0.08697	-0.0932	-0.10844	-0.1039	-0.09118	-0.08744
AGE GROUP	MARAKWET	SAMBURU	T.NZOIA	TURKANA	U.GISHU	W.POKOT	R.VALLEY
5-9	0.022914	0.007731	-0.03509	-0.00657	-0.00621	-0.03239	-0.0068
10-14	0.047715	0.027252	-0.03623	0.019769	-0.00701	-0.03679	-0.00093
15-19	0.062084	0.062175	-0.03617	0.059144	-0.02014	-0.02653	-0.00253
20-24	0.05469	0.074487	-0.04051	0.05868	-0.03878	-0.05147	-0.00977
25-29	0.046786	0.052755	-0.03497	0.040384	-0.00855	-0.04803	0.000165
30-34	0.039227	0.002243	-0.0211	0.04531	0.00182	-0.03607	0.004537
35-39	0.058289	0.047167	-0.00758	0.05549	0.014021	-0.01586	0.020698
40-44	0.015266	0.02638	-0.02946	0.048742	-0.00613	-0.03233	-0.0037
45-49	0.035563	0.000631	-0.02365	0.033013	0.020364	-0.04314	0.009394
50-54	0.025888	0.050963	-0.03039	0.086255	-0.00196	-0.02143	0.005821
55-59	0.008178	0.019602	-0.02455	0.060053	0.00379	-0.02667	0.001811
60-64	0.031042	0.046987	-0.03299	0.084022	0.016697	-0.05477	0.015756
65-69	0.016706	0.032381	-0.04768	0.099173	-0.02543	-0.03868	-0.00614
70-74	-0.06452	-0.05949	-0.08781	0.091846	-0.07853	-0.138	-0.07936

Table 4.7 c: Rift Valley province (combined)-Net migration rates.

AGE GROUP	BARINGO	KAJIADO	KERICHO	LAIKIPIA	NAKURU	NANDI	NAROK
5-9	0.00068	-0.01901	0.013594	-0.028	-0.01886	-0.004	-0.01644
10-14	0.010565	-0.01841	0.014633	-0.04216	-0.03181	0.000288	0.00012
15-19	0.007158	-0.03547	-0.00438	-0.04753	-0.04294	-0.01008	-0.01767
20-24	0.007631	-0.03347	0.011184	-0.04291	-0.03409	-0.00705	-0.03807
25-29	0.014782	-0.00321	0.023004	-0.02208	-0.00755	0.011402	-0.00896
30-34	0.014871	-0.00326	0.022182	-0.02352	-0.00472	0.007436	-0.00686
35-39	0.024178	-0.00142	0.036845	-0.02503	0.002052	0.005828	-0.00722
40-44	-0.00005	-0.00937	0.002171	-0.02015	-0.00821	0.002947	-0.01438
45-49	0.009173	-0.00211	0.009806	-0.01187	-0.00572	0.016099	-0.00428
50-54	0.020707	0.014024	0.012278	-0.0422	-0.01691	-0.00348	-0.0007
55-59	0.00871	-0.00152	0.001452	-0.03534	-0.00832	-0.00549	-0.01921
60-64	0.005705	-0.00496	0.025761	-0.02316	-0.00858	0.017325	0.021419
65-69	0.00367	-0.01019	0.004626	-0.05716	-0.04142	-0.01295	0.011842
70-74	-0.1002	-0.09995	-0.09753	-0.12327	-0.11741	-0.1035	-0.0922
AGE GROUP	MARAKWET	SAMBURU	T.NZOIA	TURKANA	U.GISHU	W.POKOT	R.VALLEY
5-9	0.022521	0.010629	-0.03417	-0.00472	-0.0063	-0.03061	-0.00563
10-14	0.041671	0.025704	-0.03867	0.021861	-0.01112	-0.03671	-0.0027
15-19	0.050623	0.0373	-0.04234	0.046774	-0.02523	-0.0387	-0.01032
20-24	0.047008	0.032853	-0.0421	0.042121	-0.02825	-0.05525	-0.00961
25-29	0.051859	0.042034	-0.02672	0.031072	0.005425	-0.02823	0.007447
30-34	0.044566	0.016394	-0.02164	0.04564	0.006973	-0.02953	0.007888
35-39	0.047608	0.044186	-0.0114	0.06787	0.007081	-0.01576	0.016217
40-44	0.021819	0.023514	-0.03151	0.06767	-0.00205	-0.02755	0.000465
45-49	0.03122	0.00596	-0.03208	0.043136	0.009644	-0.03884	0.004739
50-54	0.030245	0.056623	-0.02952	0.088746	0.00404	-0.02232	0.006578
55-59	0.004831	0.012138	-0.03626	0.071609	-0.0052	-0.02709	-0.00275
60-64	0.02425	0.0318	-0.04259	0.073089	0.006013	-0.04648	0.009466
65-69	0.019899	0.020612	-0.04171	0.09212	-0.03	-0.04042	-0.00719
70-74	-0.07242	-0.07916	-0.10302	0.082109	-0.10304	-0.14394	-0.09281

(a) BARINGO:

Except for limited gains in old population aged over 70 years and young women aged 15 to 19 years, Baringo experiences extensive net loss of population in most of the remaining age groups. Such out-flow affects women and children indicating that the urge for permanent settlement elsewhere outside the district is a major cause root of the observed population out-flow. Such movement streams are mainly directed towards the former white highland districts of Nakuru, Uasin-Gishu and Laikipia. West Pokot is yet another destination area for migrants of Baringo origin. Net loss of population from the district is mainly attributable to the unfavourable environmental conditions prevailing in the district.

(b) KAJIADO:

Kajiado portrays a distinctive migration pattern which reflects the influence of urbanisation and that of population invasion for settlement purposes. The influx of young people aged between 15 and 24 years is largely explained by the district's proximity to Nairobi. Thus, it becomes apparent that there is a spill-over of Nairobi's population into the nearby Ngong township located in Kajiado district. This is particularly reflected in the net loss of female

population who have reached older ages (45-54 age groups). The in-flow of much older people aged over 40 years however, confirms the significant role of rural-rural migration for settlement purposes in the district. Such in-flow streams are mainly from the neighbouring districts of Central province, especially from Kiambu. The growth of settlement at Loitokitok and the thriving business at Namanga border post on the Kenya-Tanzania border may also serve to explain the observed population movements into the district.

(c) KERICHO:

Though Kericho has, for a long period, been known to be a major population recipient district before and after independence, the tabulated net migration rates indicate that population movement into the district has subsided in recent years. Population net gain is apparently limited to young adults in the age group 15-19 and older women aged between 40 and 49 years. In the past, large number of tea pluckers from Western Kenya (especially from Kisii and South Nyanza districts) were attracted into the tea plantations managed by Brooke Bond Kenya Limited and African Highlands Produce Company Limited. However, with the emergence and growth of urban informal sector during the intercensal period, it would appear that a considerable portion of potential cash crop labourers were diverted to the ever growing informal sector elsewhere in the country.

The age structure of male migrants from the district is indicative of population movement for re-settlement purposes. Thus, net loss of male population from the district is not only experienced among children aged between 5 and 14 years but also among adults aged between 20 and 69 years. Data generated by birthplace questions indicate that population movement from Kericho are mainly directed towards Narok and Nakuru districts. Kericho is indeed the major contributor of migrants found in Narok. This net out-flow may partly be attributed to the increasing population densities in the well watered parts of Buret, Bomet and Belgut divisions. The recent opening of the neighbouring Narok district for settlement is yet another cause of population out-flow from Kericho.

(d) LAIKIPIA AND NAKURU:

These two districts portray similar migration patterns exhibiting population in-flow affecting all age groups. Though this is largely accounted for by post-independence opening up of former white highlands for settlement and the increasing pressure on land in the neighbouring districts, there are other important factors which cannot be ignored. One such factor is the growth of urban centres in these two districts. In 1979, the two areas had seven urban centres whose population constituted 45 per cent of the total provincial urban population. These included Nanyuki, Naivasha, Gilgil, Njoro,

Elburgon, Molo and Nakuru, the last six in Nakuru district alone. It is therefore reasonable to surmise that not all population movements into these two districts are for the purpose of permanent settlement, though these have been important areas of re-settlement since independence.

Population in-flow into Nakuru may also be explained in terms of its location relative to rail-road connections. Nakuru forms a major focal point where four major trunk roads- A 104 linking Kenya and Uganda, B1 linking Nyanza to Rift-valley province, B4 connecting Nakuru to Kenya-Sudan highway (A1), and B5 connecting Rift valley to Central province- converge from all directions. The district also forms a major rail junction where the Kisumu branch joins the main Kenya-Uganda railway. It is therefore easily accessible for migrants from different parts of the country. In the order of importance Nakuru receives most migrants from densely populated districts of Kiambu, Kericho, Kakamega, Muranga and Nyeri, thus, confirming the dominant role of rural-rural migration for permanent settlement in the district.

Though population flow into Laikipia was formerly directed to Nyahururu and Mermanet settlement schemes, the recent growth in the number of co-operatives and land-buying companies has, in recent years, given rise to the expansion of new settlements schemes in Rumuruti, Ngarua and Central divisions. These include Ol'Arabel, Lariak, Kalalu, Muhotetu, Kieni east and Matonye settlement schemes. A significant

rural-urban migration, engendered by displacement of squatters by new land owners, is also taking place at Nyahururu town. This has led to the recent rise of shanty villages at Lakii and Kwambuzi.

(e) NANDI:

Nandi, where cash crop (tea) farming has, in the past played a dominant role in attracting labour migrants, portrays an age structure indicative of population movement from the district for permanent settlement elsewhere in the country. This is evidenced by population loss in the age brackets 20-54 for females and 25-49 for both sexes combined. Migrants from Nandi are mainly directed towards the former white highland districts of Uasin Gishu, Trans Nzoia, Nakuru and Laikipia.

(f) NAROK:

This is yet another district where population in-flow for permanent settlement is apparent. The district experiences a considerable gain in children population aged between 5 and 14 years, accompanied by their parents aged between 20 and 44 years. Net out-migration of people after age 60 however indicates that not all in-migrants found in the district go there for permanent settlement. Some go there mainly to join their relatives on temporary basis while others move into the district to engage on business or to seek temporary employment.

Population movement into the district may be explained in terms of the recently realised potential of the district for arable and pastoral farming. Narok was formerly regarded as marginal, as far as agricultural development was concerned. As the district has been transforming itself from pure nomadic pastoral activities to modern agricultural methods of farming, it has attracted farmers from the neighbouring districts (Kisii, Kiambu and Kericho), where the problem of land shortage has become acute. Thus, there has been substantial population flows to Narok from Kericho, Kiambu, Kisii and even Nakuru. Such migrants have introduced mechanised wheat farming in the well watered Mau-narok section of the district. Other crops such as pyrethrum, maize and potatoes are also grown.

(g) ELGEYO MARAKWET:

The district is affected by substantial out-migration, mainly due to the availability of land formerly held by white settlers in the neighbouring Uasin Gishu and Tranz Nzoia districts. Extensive out-migration from Elgeyo Marakwet may also be explained by past "Ngoroko" (cattle rustlers) activities which discouraged people from residing in the area. Thus, between 1969 and 1979 the district registered a negative population growth rate of -0.63 (Kenya, 1985).

(h) SAMBURU AND TURKANA:

These two districts reflect a migration pattern characteristic of nomadic way of life. Population out-flow involving people of all ages except the young and the aged is a basic characteristic of nomadic migration pattern observable in these two districts. Such out-migration streams are mainly in the direction of the well-watered districts such as Tranz-Nzoia, Uasin Gishu, Nakuru and Laikipia. Extensive net loss of population from the two districts is largely attributable to harsh environmental conditions (aridity) experienced in the two regions. The recent construction of the new Lodwar-Kapenguria highway(A1) has also promoted population out-flow from Turkana to other districts further south (West pokot, Trans Nzoia and Uasin Gishu). Moreover, the Turkanas often move to Sudan, Ethiopia and Uganda in search of pasture for their animals. This may explain why Turkana had a growth rate of -1.29 during the intercensal period.(Kenya, 1985)

(i) WEST POKOT:

This district experiences net gain in population at all age groups. This may suggest that there has been intensive invasion of the area for permanent settlement. The following factors may serve to explain the magnitude of population in-flow to the district:

- (i) The district's location in the Kenya-Uganda border, and the recent construction of Lodwar-

Kapenguria road. The area has therefore become more accessible than hitherto in recent years.

(ii) The growth of Kapenguria township as the main commercial and administrative centre in North western Kenya. Progressive growth of trading centres such as Makutano, Chepareria, Ortum and Marich into commercial centres has also made the area attractive. Small-scale gold mining at Alale, Sook and Kasei locations is yet another force of population attraction. Most migrants in the district come from the neighbouring Turkana and Baringo districts.

(j) TRANS NZOIA:

Trans Nzoia has apparently attracted migrants of all ages, indicating population in-flow for land acquisition. The influx of population into the district from different parts of the country is mainly explained by its high land potential and favourable climate; its initial sparse population and the government policy of re-settling indigenous population in the former scheduled areas. Though Trans Nzoia receives people from Rift Valley and Central provinces, the migration streams from Bungoma and Kakamega districts of Western province appear to be the most dominant. This dominance is largely attributable to acute land shortage and massive population displacement following the establishment of Nzoia and Mumias sugar factories and Webuye Pan-African Paper Mills in those two neighbouring districts. Kitale municipality forms a major destination area for young adults and landless squatters who have not generated enough capital to purchase land of their own.

(k) UASIN GISHU:

Like Trans Nzoia, Uasin Gishu is a major population recipient district, given its high land potential, good climate and post-independence land re-settlement policy. Most migrants found in this district mainly come from the neighbouring Nandi, Elgeyo Marakwet and Baringo districts in Rift valley. Other migrants, in descending order, come from Western and Central provinces. The growing significance of rural-urban migration in the district is clearly reflected in the net gain in the population of young adults aged between 15 and 24 years, and net loss of male population who have attained retirement ages (55-64 age groups). With all the non-citizen farms bought and the government settlement schemes allocated, the movements of people into Uasin Gishu has been mainly directed towards Eldoret municipality where accelerated industrialization is currently taking place. The tabulated migration rates of combined sexes portray net gain in population of job-seeking migrants aged 15 to 24 years followed by out-migration of those who have not been successful in the job-seeking adventure (age groups 25-39 years).

SUMMARY:

From the foregoing discussion, it becomes apparent that internal migration in Rift valley province is strongly weighted by population flow into the former scheduled districts

that were reserved for white settlement during the colonial period. Within the province, movements are more pronounced from marginal districts of Baringo, Elgeyo-Marakwet, Samburu and Turkana to high potential districts of Nakuru, Uasin Gishu, Laikipia and Trans Nzoia.

Although rural-rural migration flows associated with post independence re-settlement programmes characterise internal population movements in the province, the migration pattern of male population provides adequate reasons to believe that rural-urban share in total provincial migration is rapidly gaining prominence. Thus, there is net gain in the population of young men aged between 15 and 24 years and net loss of middle aged males aged 25 to 39 years. Further net loss of male population is experienced in the age brackets 45-64. Though this pattern may be explained by return migration of unsuccessful job-seekers and those who have attained retirement ages from the 31 urban centres found in the province to their original home districts, it may also be due to the fact that men who have acquired land tend to leave their wives and children in the newly acquired land to go and seek for employment elsewhere in the country. The observed out-migration from the province may also indicate that population movements into the former scheduled districts have subsided in recent years.

Figures 4.1 , 4.2 and 4.3 give a partial summary of the magnitude and direction of internal migration in some districts of Kenya. Based on 1979 net migration census data , figure 4.1 reflects the dominance of Eastern province in migration stream flows to Taita-Taveta , Kwale and Kilifi districts. The influx of people into Mombasa is dominated by stream flows from within Coast province , followed closely by those from Nyanza , Eastern and Western provinces. Tana River and Lamu receive most migrants from North Eastern and Central provinces respectively.

Figure 4.2 portrays the growing significance of Rift Valley province as a major destination region for migrants from Western Kenya. The dominance of Nairobi as a major population recipient province is also clearly reflected in figure 4.2.

Figure 4.3 shows population movements into some districts of Rift Valley province. Central province dominates migration stream flows into the adjacent districts of Laikipia, Nakuru and Kajiado. Migration flows from Nyanza is more pronounced in Kericho while Western province dominates population flows into Trans Nzoia and Nandi districts. Baringo and Narok receive most migrants from within Rift Valley province.

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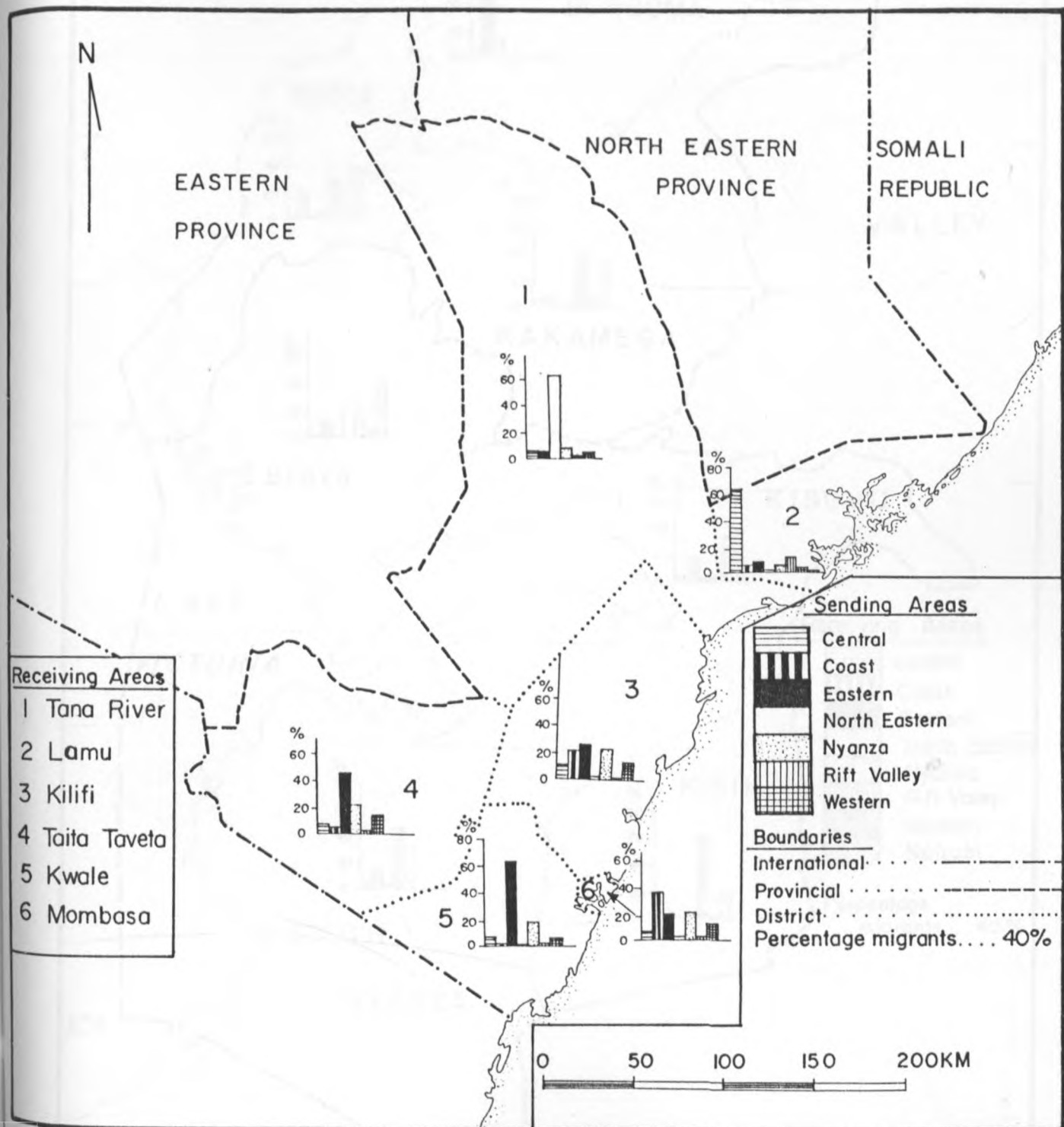


FIG. 4.1 NET IN-MIGRATION IN COAST PROVINCE, 1979 CENSUS

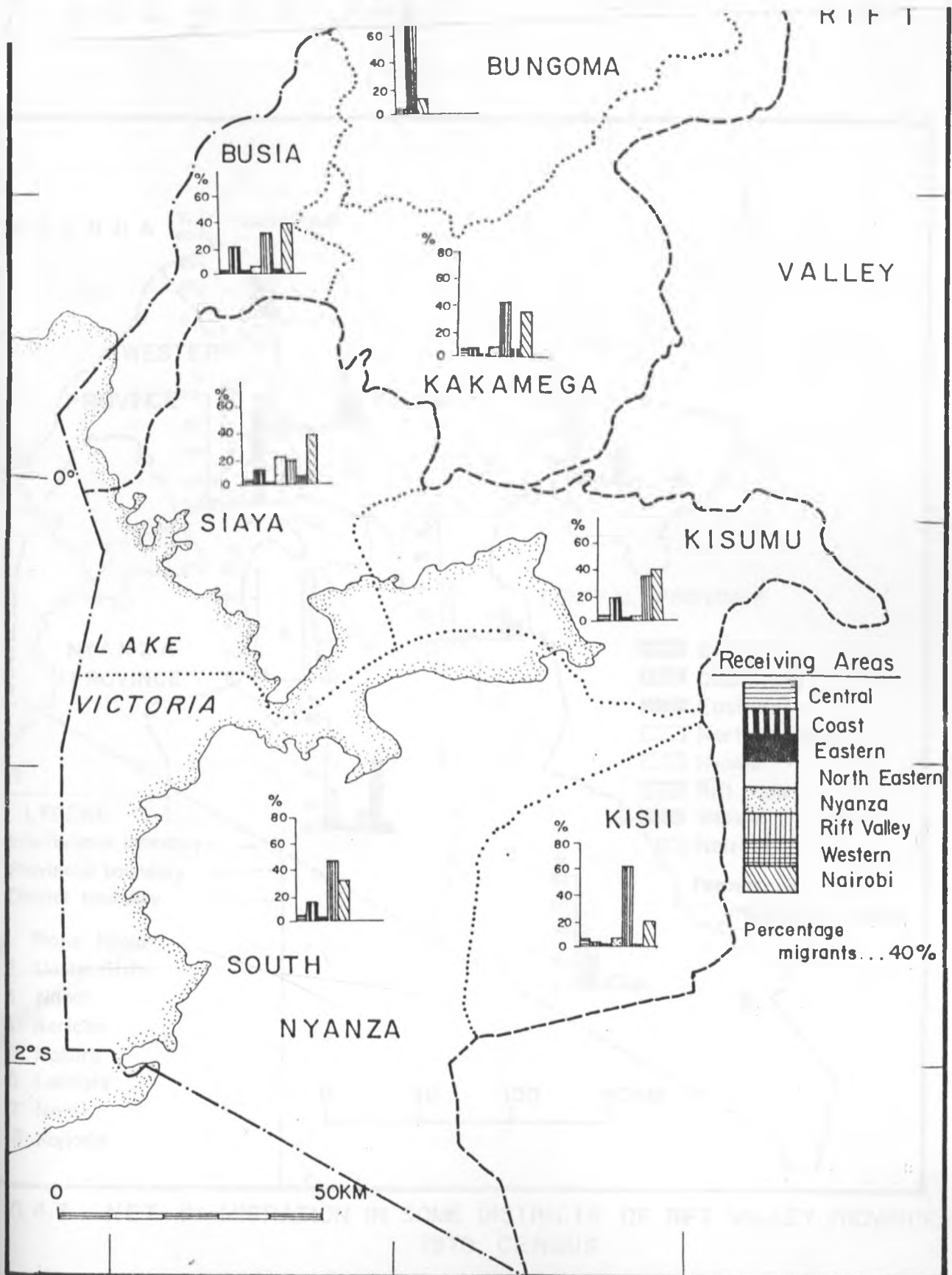


FIG. 4.2 NET OUT-MIGRATION FROM WESTERN KENYA, 1979 CENSUS.

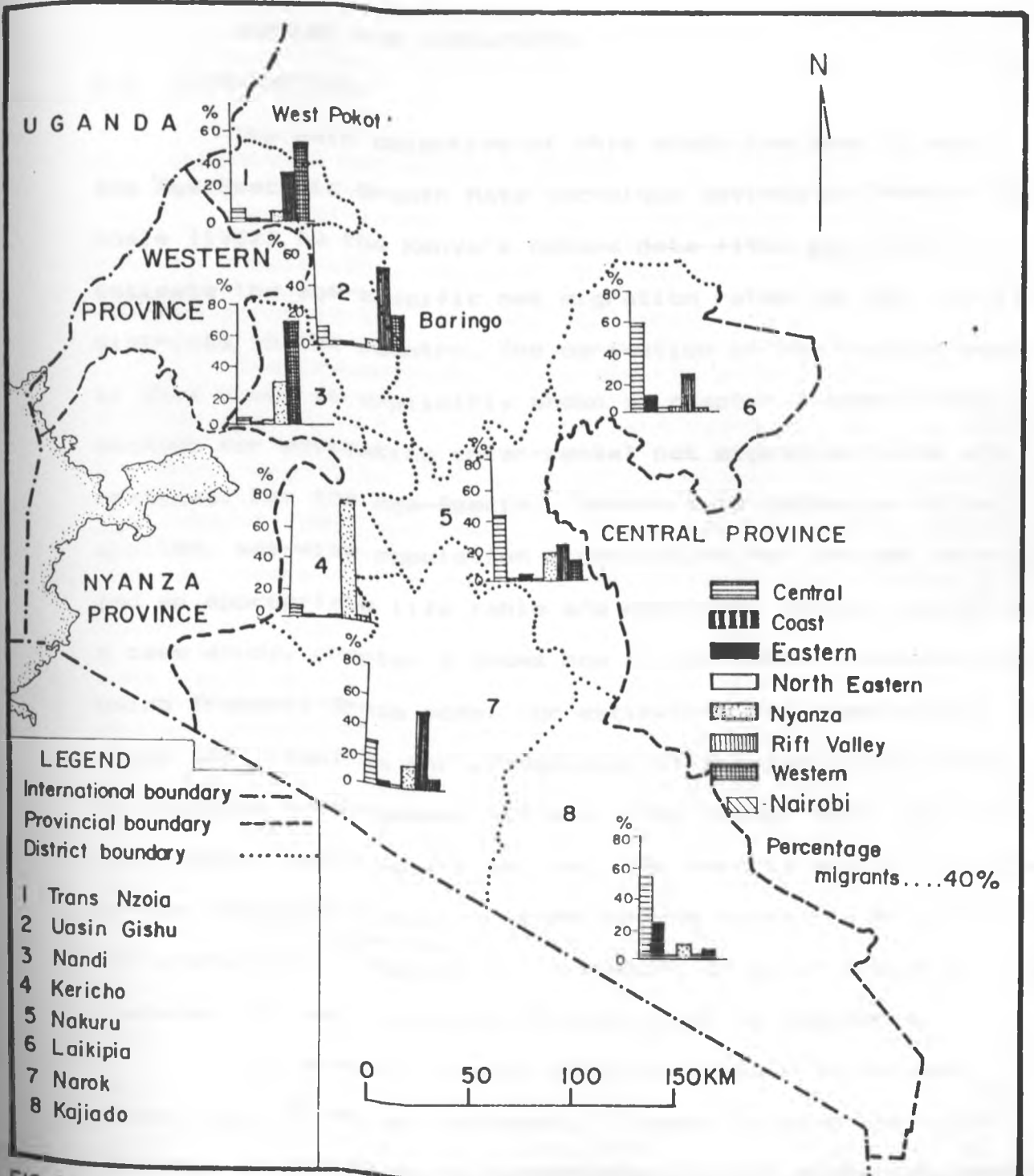


FIG.4.3 NET IN-MIGRATION IN SOME DISTRICTS OF RIFT VALLEY PROVINCE 1979 CENSUS

CHAPTER 5

SUMMARY AND CONCLUSION.

5.0 INTRODUCTION.

The main objective of this study has been to apply the Age-Specific Growth Rate technique devised by Preston and Coale (1982) to the Kenya's census data (1969 and 1979) to estimate the age-specific net migration rates for all the 41 districts in the country. The derivation of the formula used in this study is explicitly shown in chapter 2 where other methods for estimating inter-censal net migration rates are reviewed. For the Age-Specific Growth Rate technique to be applied, age-wise population distribution for the two censuses and an appropriate life table are required. Taking Nairobi as a case study, chapter 3 shows how a life table is constructed using Trussell-Brass model for estimating child mortality. The study only requires the probability of survival $p(a)$ values to estimate inter-censal net migration rates. Thus, not all life table functions are derived. The results and discussions of the obtained migration rates for the remaining 40 districts are presented in chapter 4. A summary of major migration features for each province is also given in chapter 4.

The present chapter seeks to achieve three main objectives. First and foremost, it seeks to echo the major findings of the study by summarising salient migration features discussed in the preceding chapters. Second, it makes some fundamental recommendations that are pertinent to policy making

on either regional or national basis. Finally, it highlights opportunities for further research on not only the actual problem under study but also other closely related problems.

5.1 SUMMARY OF THE MAJOR FINDINGS.

As postulated in our first hypothesis, the study reveals considerable regional variation in net migration rates:

(a) MIGRATION IN THE METROPOLITAN AREAS:

The two metropolitan districts of Nairobi and Mombasa are found to reflect the same age-specific migration pattern, suggesting that major forces attracting the people into and/or repelling them from these two regions are nearly similar. There is out-migration of children aged between 5 and 9 years and women in the 25-29 age bracket. This indicates some positive correlation in population movements within these two age groups, with a possibility of the latter being the former's mothers. Population out-flow experienced within these two age brackets may be attributable to acute shortage of standard one places in major urban centres of the country.

Population net gains in these two urban districts are experienced in the age groups 10-24 for females and 10-29 for males. These are mainly school-drop-outs, school-leavers, the unemployed and those seeking for education and training who move to major urban centres in response to the prevailing opinion that such centres offer the best stepping-stone to one's social and economic solutions. Thus, these young people tend to move into major urban centres to flee from rural

poverty, to look for jobs and to lead a better life that such centres are expected to offer. This phenomenon is partially observable in Kisumu and Uasin Gishu districts where the influence of Kisumu and Eldoret municipalities are being felt. This finding confirms our second hypothesis that young adults mainly tend to migrate to major urban centres.

The study finds out that Nairobi and Mombasa experience net loss in population between age groups 30 to 69 for males and 25 to 69 for females. People found in these age brackets are likely to be those who have given up job-hunting in the towns; the entrepreneurial class who have accumulated enough money in the urban areas and are moving out to invest it in land and/or business elsewhere in the country; people who have completed their education and/or training; those in job transfers and people who have attained retirement ages. Thus, it may be concluded that population flows into major urban centres of the country are mainly for employment purposes and not for permanent settlement.

(b) MIGRATION IN RE-SETTLEMENT AREAS:

Re-settlement areas in Kenya, especially the former scheduled districts, are found to portray a similar migration pattern. They are marked by population net gains in all age groups indicating that population flows into such areas involve movements for permanent settlement in the newly acquired lands. This pattern of migration, largely attributable to land pressure in the adjacent districts, is observed in Laikipia, Trans-Nzoia, Uasin-Gishu, West Pokot, Kajiado, Nakuru, Lamu

and Tana River districts. The migration pattern in Uasin Gishu is, however, influenced by recent rapid growth of Eldoret town. Thus, the district experiences net gain in the population of young adults aged between 15 and 24 years. It also experiences net loss of male population who have attained retirement ages (55 to 64 age groups). The fact that population net-flow into re-settlement areas is experienced in all age brackets supports the hypothesis that such flows involve family movements.

(c) MIGRATION IN CASH CROP AREAS:

Cash crop-producing districts are found to register net gains in the population of young people aged between 10 and 14 years. This phenomenon is observed in Muranga, Kiambu, Nyeri, Embu, Kirinyaga, Nyandarua and Nandi districts where cash crops such as coffee, tea and pyrethrum are produced. This finding underscores the important role children are playing in crop production in rural areas of the country.

Besides the observed net gain in population aged between 10 and 14 years, all districts of Central province except Nyandarua are found to experience net gain in population aged 50 to 54 years indicative of early retirement. These may be people who have accumulated money in the urban areas and are coming back home to invest it in land and/or business.

(d) MIGRATION IN NOMADIC AREAS:

Migration pattern in the Northern part of the country is found to be greatly influenced by the nomadic life style of the inhabitants. Such life style is reflected in the

migration pattern involving family movement closely associated with nomadic areas. Thus, whether a district is experiencing net loss or net gain in its population, such movements often affect nearly all age groups. The pattern is clearly portrayed in Mandera, Wajir, Garissa, Marsabit, Samburu and Turkana districts.

The obtained migration rates, used in conjunction with birthplace statistics do reflect southward movement of population from northern part of Kenya to well-watered districts further south. This may suggest that some of the nomads have ^ubegin to settle down. Garissa receives most migrants from other districts of North Eastern province.

(e) MIGRATION AT THE BORDER AREAS:

Districts located along the international boundaries are found to register net gains in population, suggesting that people moved into Kenya from the neighbouring countries during the intercensal period. This phenomenon is particularly observable at Busia and West Pokot in the Kenya-Uganda border; Kajiado and Narok in the Kenya-Tanzania border; Garissa and Wajir in the Kenya-Somali border and Marsabit in the Kenya-Ethiopia border. The observed population net gain in these districts is largely attributable to the turbulent political conditions which prevailed in most of the neighbouring countries during the intercensal period.

(f) MIGRATION IN WESTERN AND EASTERN KENYA:

About 10 out of 13 districts in Nyanza, Western and Eastern provinces are found to register net gains in children population aged between 5 and 9 years. These are mainly rural districts which contribute a considerable portion of migrants to the metropolitan districts of Nairobi and Mombasa. Given that these two major urban centres experience net loss of children aged 5 to 9 years, there is a strong possibility that rural-urban migrants from Western and Eastern Kenya tend to send their children back home for education and child care thus, maintaining some degree of rural-urban linkage. This pattern can be observed in rural districts such as Kitui, Machakos, Kakamega, Bungoma, Busia, Siaya and South Nyanza.

All the districts in Nyanza and Western provinces are found to experience net loss in male population aged between 15 and 29 years. In Kitui, Machakos, Meru and Embu districts of Eastern province, such net out-flows are experienced up to age 24. Given that major urban centres tend to register net gains in male population enclosed in these age brackets, it may suffice to conclude that the majority of young male population lost from these rural districts are mainly received in major urban centres. These are mostly young adults flocking into towns in response to the better welfare services, health centres, educational facilities, job opportunities and other amenities concentrated in such centres.

Numerically, while some of these young men do indeed find jobs, the majority of them, faced with an inexorable rise in unemployment, end up in slum areas where living conditions turn out to be worse than those of the rural districts they had fled from. This study finds out that most of the sending districts of Western and Eastern Kenya (districts contributing migrants to Mombasa and Nairobi) experience net gain in male population after age 40. This may suggest some return migration of the unsuccessful job-seekers. This phenomenon is particularly observable in Siaya, South Nyanza and in all the districts of Western province. For most districts of Western and Eastern Kenya, return migration of retirement type is observable within the age brackets 55-59, 60-64, 65-69 and 70-74. Thus, return migrants are found to be older than migrants to major urban centres.

5.2 POLICY RECOMMENDATIONS:

From the foregoing findings, this study puts forth some recommendations that are pertinent to policy making. Given the nature of the observed population movements between Urban destinations and rural origins, the study concludes that neither the urban recipients nor the rural senders can resolve their migration-related economic and social problems in isolation. It is therefore recommended that, in attempting to solve the dilemma of rural-urban population drift and its related problems, the government should intensify

the integrated development policies to deal with what the two regions identify and concede are common problems.

One of the most important causes of rural-to-urban population exodus is the disparity in socio - economic development between urban and rural sectors. What is urgently needed to cope with this problem is the extension of resource-based development inducing industries, water supply, and electricity to the less favoured rural areas. The improvement of rural access roads, health centres, loan system and other essential services in rural areas will minimize recurrent unemployment, underemployment, economic insecurity and disillusionment with rural development projects while, at the same time, making the rural areas attractive to the urban entrepreneurs and hence, discouraging rural-urban population exodus.

To reduce population concentration in the economically favoured districts of Nairobi and Mombasa, less emphasis should be given to the establishment of capital-intensive industries. Emphasis on resource-based industries will stimulate geographical dispersion of industries to the small and medium sized towns which maintain close contact with rural areas thus, reducing industrial dominance of Nairobi and Mombasa.

Western Kenya is found to be experiencing extensive net loss in its productive labour force. This phenomenon is not very healthy for current and future economic development of the region. It is, therefore, recommended that a considerable

agricultural and industrial potential of the region should be exploited and developed to stem out the inevitable drift of its rural population to the major urban centres. Sound agricultural base, large population which imply a sizeable market potential and easy access to Lake Victoria are major assets for industrial development in the region. The growth and expansion of agro-industrial establishments may reduce the observed population out-flow from the region.

Districts bordering international boundaries are found to be gaining population. This may indicate that there is population movement into the country from outside. Checks on such movements should be intensified to prevent possible clandestine economic and political malpractices along the border regions.

Population in-flow to Garissa and the observed general southward movements of population from Northern Kenya suggest that some of the nomads are beginning to settle down. The region is, however, marked by desiccating climatic conditions, poorly developed standard and human infrastructure and scarcity of organic industrial raw material. Despite these limitations, the zone is possible high potential area for beef cattle ranching if the rich underground water resource in this section of the country can be exploited. Oil can also be exploited in this area. However, for these developments to be realised, there is need for revolutionary improvements on standard and human infrastructure in the region.

5.3 CONTRIBUTION TO OTHER ACADEMIC WORK:

The result of this study may be used to support and/or explain the findings of other scholars within the country. Population net loss from Western Kenya and Central Province, for instance, supports Knowles and Anker's (1977) finding that out-migration from these areas is mainly engendered by land pressure and unemployment.

In his analysis of inter-district migration information provided in 1969 Kenya census, Rempel (1977) speculated that demographic characteristics of Nairobi reflected either a declining birth rate or extensive out-migration of children born therein. It has been found out in this study that there is out-migration of children aged between 5 and 9 years from Nairobi. This net loss is largely due to acute shortage of standard one places in the city.

Population net gain in Lamu, Tana-River, Narok and former scheduled districts is in line with Matingu's (1974) finding that rural-urban migration for permanent settlement involves family movements since the majority of these migrants are married. Moreover, the labour contribution of women and their children is necessary in developing newly acquired lands.

In their study of migration, transfers and rural development, Oduho and Mukras (1983) found out that the new arrivals in town, the newly employed, the low and middle cadre urban workers remitted more of their wages back home than the

long-service men and the upper income group. The validity of this argument granted, the findings of the present study can be used to identify regions of high urban-rural cash remittances. The districts gaining children aged between 5 and 9 years and those experiencing net loss of young adults aged 10 to 29 years are likely to be the major recipient areas for such remittances. These include, among others, Siaya, Kisumu, South-Nyanza, Kakamega, Bungoma, Kitui, Machakos and Taita-Taveta.

The findings of the present study may further be used to explain the works of Osiemo (1986) and Kichamu(1986). The former found high fertility in Narok, Tana-River, Kajiado and Lamu which, in the past, have been considered low fertility areas. It has been shown in this study that these are mainly districts of recent settlement. This rise in fertility may be accounted for both by population in-flow into these districts from high fertility areas and by the transformation of the inhabitants from nomadic way of life to that of permanent settlement. Kichamu, however, came up with relatively high infant mortality in Nairobi and Mombasa where most of the national health facilities are concentrated. This unexpected phenomenon may be attributable to the impact of population movements into these two urban districts from high mortality regions. Thus, when used to supplement these two demographic studies, the present work may be used to depict the effects of migration on fertility and mortality.

5.4 LIMITATIONS OF THE STUDY TECHNIQUE:

Though this technique has been found to produce plausible results, it should be noted that it has its own limitations. As noted elsewhere in this study, this technique cannot show which of the district is losing or gaining population to which other district. Thus, to ascertain the direction of migration stream flows, it has to be used in conjunction with birthplace statistics. Moreover, the technique is affected by age mis-reporting, census coverage and inter-censal boundary changes. Although the technique distinguishes net in-migration from net out-migration, it makes it difficult to consider sedentarianisation which may, at times, explain such observed net population flows.

5.5 SUGGESTION FOR FURTHER RESEARCH:

Although the general knowledge of migration patterns and typology is now well established in Kenya, there are major knowledge gaps in the field of migration which need to be filled. These include the following:

(i) A more demographic study of migration using some of the newly developed techniques cited in this study need to be carried out in Kenya.

(ii) The impact of migration on fertility and mortality is yet one of the major research priorities in the country.

(iii) The impact of migration on resource development in areas of origin and areas of destination need to be carefully and systematically researched. Attention should be given to short and long term social and economic impact of migration on origin and destination areas.

(iv) The relationship between migration, income distribution, population density and population growth rate remain highly speculative. Such relationships need to be investigated through extensive and intensive research.

APPENDIX

TOTAL NET MIGRATION SINCE BIRTH BY DISTRICT, 1979 CENSUS.

ORIGIN	RANKED DESTINATION				
	1	2	3	4	5
NAIROBI	Kajiado (167)	Lamu (70)	-	-	-
KIAMBU	Nakuru (43681)	Nairobi (42924)	Nyandarua (18742)	Kajiado (11717)	Laikipia (5638)
KIRINYAGA	Nairobi (5974)	Mombasa (2053)	Nakuru (1413)	Lamu (1236)	Laikipia (603)
MURANGA	Nairobi (49408)	Nakuru (20527)	Nyandarua (14641)	Kiambu (6102)	Laikipia (4279)
NYANDARUA	Laikipia (2872)	Nakuru (2365)	Nairobi (1602)	Narok (969)	Lamu (634)
NYERI	Nairobi (33254)	Nyandarua (22646)	Laikipia (20228)	Nakuru (16232)	Kirinyaga (3663)
KILIFI	Mombasa (20373)	Nairobi (735)	Kwale (574)	Nakuru (33)	Turkana (30)
KWALE	Mombasa (14517)	Nairobi (63)	Nakuru (30)	U.Gishu (21)	Mandera (20)
LAMU	Mombasa (3547)	Kilifi (1451)	Wajir (14)	Marsabit (13)	-
MOMBASA	Nairobi (2305)	-	-	-	-
TAITA-TAVETA	Mombasa (15140)	Nairobi (4263)	Kilifi (1113)	Nakuru (320)	Kwale (167)
TANA RIVER	Mombasa (2082)	Taita (514)	Lamu (351)	Nairobi (297)	Kilifi (77)
EMBU	Nairobi (5704)	Mombasa (870)	Nakuru (562)	Kirinyaga (560)	Kiambu (554)
ISIOLO	Nairobi (1205)	Nakuru (836)	Kiambu (589)	Muranga (328)	Kericho (253)
KITUI	Nairobi (21644)	Mombasa (17210)	Meru (3309)	Kiambu (2622)	Taita (1065)
MACHAKOS	Nairobi (58668)	Kwale (12260)	Mombasa (11528)	Embu (5696)	Kiambu (5317)
MARSABIT	Nairobi (2315)	Isiolo (519)	Laikipia (508)	Nakuru (447)	Kiambu (416)
MERU	Nairobi (8276)	Laikipia (3275)	Nakuru (1200)	Nyeri (1044)	Kiambu (712)
GARISSA	Tana (2729)	Isiolo (1094)	Nairobi (440)	Mombasa (223)	Lamu (152)

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MANDERA	Wajir (18900)	Marsabit (2084)	Garissa (1755)	Nairobi (1448)	Tana (526)
WAJIR	Garissa (4910)	Tana (1934)	Isiolo (1627)	Marsabit (1444)	Nairobi (927)
KISII	Kericho (18901)	Nairobi (11412)	Nakuru (8867)	Narok (3437)	T.Nzoia (2758)
KISUMU	Nairobi (28579)	Mombasa (9577)	Kericho (8355)	Nakuru (6988)	Nandi (4607)
SIAYA	Nairobi (49462)	Kisumu (22762)	Mombasa (13765)	Nakuru (12822)	S.Nyanza (5944)
SOUTH NYANZA	Nairobi (21783)	Kericho (19388)	Mombasa (6343)	Nakuru (4264)	Nandi (4189)
BARINGO	Nakuru (12205)	U.Gishu (3417)	Laikipia (1692)	Nairobi (1092)	W.Pokot (499)
ELGEYO-MARAKWET	U.Gishu (18049)	T.Nzoia (3030)	Nakuru (883)	Nairobi (692)	Laikipia (408)
KAJIADO	Lamu (394)	Kwale (173)	Laikipia (133)	Nyandarua (93)	Mombasa (44)
KERICHO	Nakuru (25983)	Narok (13028)	Nandi (10830)	Nairobi (3959)	U.Gishu (2995)
LAIKIPIA	Narok (141)	Nairobi (113)	Kilifi (60)	Mombasa (44)	Lamu (39)
NAKURU	Nairobi (3839)	Laikipia (2273)	Mombasa (386)	Lamu (299)	Narok (250)
NANDI	U.Gishu (36947)	T.Nzoia (13269)	Nakuru (2897)	Laikipia (1448)	Nairobi (867)
NAROK	Nairobi (532)	Kisumu (343)	T.Nzoia (185)	Mombasa (135)	Lamu (23)
SAMBURU	Laikipia (4726)	E.Marakwet (1938)	Nakuru (1610)	Nairobi (1112)	Nyandarua (633)
TRANZ-NZOA	Nairobi (615)	Laikipia (172)	Mombasa (135)	Kilifi (60)	Lamu (33)
TURKANA	T.Nzoia (8339)	U.Gishu (3377)	Nakuru (2818)	W.Pokot (2427)	Laikipia (1329)
UASIN GISHU	Nairobi (648)	Laikipia (577)	T.Nzoia (485)	Lamu (124)	Mombasa (105)
WEST POKOT	Kericho (1082)	Nandi (384)	U.Gishu (269)	Narok (151)	Nakuru (129)
BUNGOMA	T.Nzoia (29195)	Nairobi (5829)	U.Gishu (5274)	Nakuru (1796)	Mombasa (1529)
BUSIA	Nairobi (11483)	Mombasa (5448)	U.Gishu (3133)	Nakuru (2625)	T.Nzoia (1775)
KAKAMEGA	Nairobi (87882)	Nandi (33949)	Nakuru (20569)	U.Gishu (20553)	T.Nzoia (15147)

NOTE: Figures in the bracket show ranked net gain between the origin and destination districts.

DATA SOURCE: 1979 birth place statistics compiled by DR. J.O. Ducho, University of Nairobi (Unpublished).

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